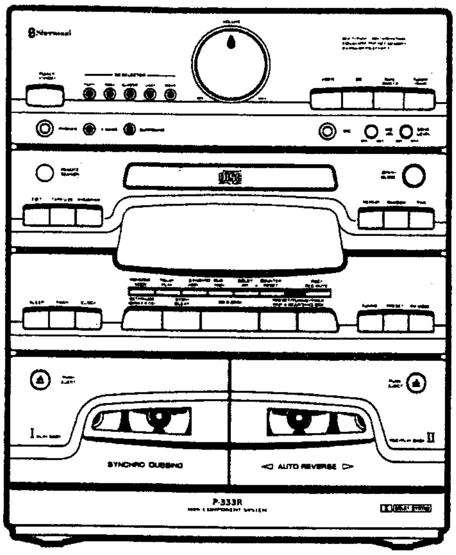
SERVICE MANUAL

P-333R

MINI COMPONENT SYSTEM



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Sherwood

LASER BEAM SAFETY PRECAUTIONS

CLASS 1 LASER PRODUCT

DANGER:
INVISIBLE LASER RADIATION.
AVOID DIRECT EXPOSURE TO BEAM.

Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

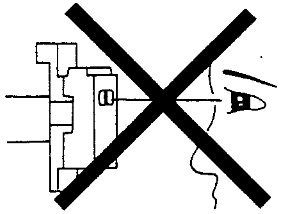


Figure 1

This compact disc player users a pickup that emits a laser beam. The laser beam is emitted from the Location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 1 foot away from the pickup lens when the diode is turn on. Do not look directly at the laser beam

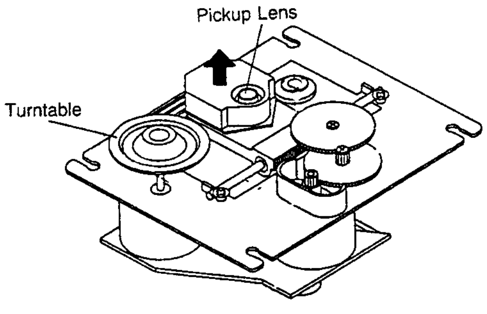


Figure 2

CAUTION:
Using controls and adjustment, or doing procedures other than those specified herein, may result in hazerdous radiation exposure.

HANDLING LASER PICKUP

The laser diode in the optical system of this player can be damaged by electrostatic discharge from your clothes or your body. Proper electrostatic grounding for service personal is required during servicing.

BEFORE REPAIRING THE COMPACT DISC PLAYER

Preparation

- Human Body Grounding:
  Many of the components used in this compact disc player, including the laser pickup, are sensitive to electrostatic discharge. Service personal should be grounded with an electrostatic armband (1 Mohm).
- Caution:
  Static charge on clothing does not escape through a body grounding wrist band.
  Be careful not to contact the pickup or electrical components with your clothing.
- Workbench and Tool Grounding:
  A properly-grounded electroconductive plate (1 Mohm) or metal sheet should be fitted to the workbench surface. Tools and instruments (such as soldering irons and scopes) should be grounded to prevent AC leakage.

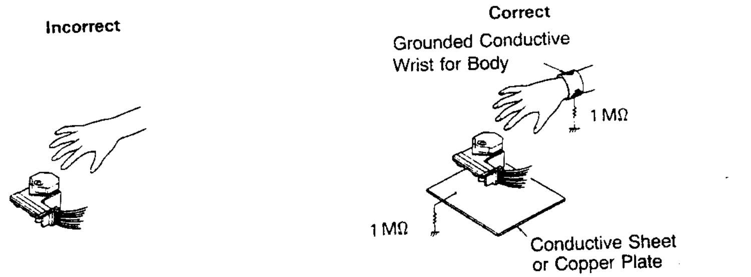


Figure 3

Note: Laser diodes are so suceptible to damage from static electricity that, even if a static discharge does not ruin a diode, it can shorten its life or cause it to work improperly.

SAFETY PRECAUTIONS

WARNING

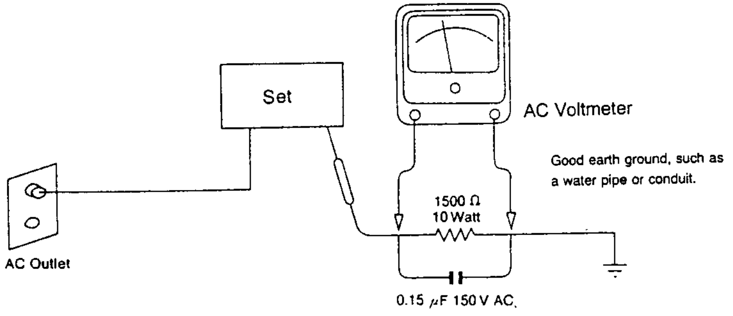
Before servicing this unit, familiarize yourself with the following precautions:

1. Many electrical and mechanical parts in this chassis have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltge, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by ⚠ in the schematic diagram and the parts list.

   Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the exposed metal parts of the cabinet, such as terminals, screw heads, and metal overlays, to be sure the set is safe to operate without danger of electrical shock.
   Plug the AC line cord directly into a 120 V AC outlet (120 V AC version only). (Do not use a line isolation transformer during this check.)
   Be sure your AC voltmeter has a sensitivity of 5000 Ω per volt or greater. Then connect a 1500 Ω 10 watt resistor, paralleled by a 0.15 µF 150 V AC capacitor, between a known good earth ground (such as a water pipe, or conduit) and the exposed metalic is parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 µF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metalic part. Voltage measured must not exceed 0.75 V RMS. This corresponds to 0.2 mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

At 5000 Ω per volt or greater sensitivity,
the reading should not exceed 0.75 V.



Place the probe on each exposed metalic part.

SPECIFICATIONS

Audio Section

Description		Unit	Norminal	Limit
RMS output power				
at distortion below 0.4% THD	40 Hz	W	28	25
both channels driven at 6Ω	1 kHz	W	33	30
	20 kHz	W	28	25
Harmonic distortion at 30 W output 1 kHz		%	0.12	0.4
Intermodulation distortion				
at 30 W output 60 Hz:7 kHz=4:1 SMPTE		%	0.1	0.3
Input sensitivity at 30 W output 1 kHz				
	VIDEO	mV	250	±50
	MIC	mV	2	±1
Signal to noise ratio (WTD/UNWTD), EQ part		dB	72/85	68/80
Channel separation				
VIDEO	1 kHz	dB	55	50
	10 kHz	dB	50	40
Frequency response at -3 dB		Hz		40-50 k
X-Bass compensation at 1 W output		dB	55	50
Surround compensation at 1 W output		dB	45	40

Equalize Section

EQ	Pops	Rock	Classic	Jazz	Movie	Unit	Limit
60 Hz	-4	3.5	-0.5	1	2	dB	±2
250 Hz	1	0	-2	1	-1	dB	±2
1 kHz	2	-3	-3	0	-1	dB	±2
4 kHz	0.5	0	-2	-1	0	dB	±2
12 kHz	-2	1.5	-1	-0.5	0.5	dB	±2

FM Section

Preparation

- FM performance test standard.
- RF signal: 98.1 MHz
- Modulation: Mono ±75 kHz deviation for 1 kHz
  Stereo ±65 kHz, L=-R
  Pilot carrier 10% deviation, 19 kHz
- Antenna input impedance: 75 ohms unbalanced
- At dolby tape (TCC-130) speaker output 2 V
- Test condition: 75 kHz Dev. at 1 kHz

Description		Unit	Norminal	Limit
Tuning coverage for USA/Canada		MHz	87.5-107.9	87.5-107.9
Tuning coverage for Europe		MHz	87.50-108.00	87.50-108.00
Usable sensitivity at S/N=-30 dB 75 ohm input				
(90.1 MHz, 98.1 MHz, 106. 1 MHz)	Mono	µV	2	3
50dB Quieting sensitivity, stereo for (IHF BPF):				
	Mono	µV	5	8
	Stereo	µV	40	70
Total harmonic distortion				
	Mono	%	0.3	0.5
	Stereo	%	0.5	0.7
Signal to noise ratio (WTD)				
	Mono	dB	70	65
	Stereo	dB	65	60
Muting and automatic stereo threshold at 98.1 MHz		µV		
Stereo separation (IHF BPF):				
	1 kHz	dB	40	35
	10 kHz	dB	35	30
Limiting sensitivity at -3dB		µV	1.58	2
Auto stop level		µV	20	20±5
Frequence response at -3 dB		Hz	30~15 k	40~140 k
Image rejection at 106.1 MHz		dB	40	30
AM suppression		dB	40	35
Output voltage at 1 kHz, Mono 75 kHz Dev.		mV	2500	2500±200

AM Section (MW)

Preparation
- AM performance test standard
- RF signal: 1000 kHz, 5 mV/m
- Modulation: 400 Hz, 30%
- At dolby tape (TCC-130) speaker output 2 V
- Test condition: 30% Dev. at 400 Hz

Description	Unit	Norminal	Limit
Tuning coverage for USA/Canada	Hz	520-1710	
Tuning coverage for Europe	Hz	522-1611	
Usable sensitivity at S/N=-20 dB, 30% Mod., 400 Hz (AM: 590 kHz, 1000 kHz, 1400 kHz)	µV/m	800	1200
Signal to noise ratio (AM: 1000 kHz, 400 Hz, 5 mV, 30% Mod.)	dB	38	30
Frequency response at -6dB	Hz	75-2 k	100-1.8 k
Selectivity I.H.F at 9 kHz/10 kHz	dB	25	20
A.G.C figure of merit 999 kHz	dB	50	35
Image rejection 1404 kHz	dB	35	30
Output voltage at 400 Hz, 5 mV 30% Mod.	mV	1000	1000+300

CD Section

General

Transmission bit rate	4.3218 Mbit/sec
Transmission on clock	16.9344 MHz
Error correction	CIRC C1, C2 double correction

Pickup

System	Object lens drive type optical pickup
Object lens drive system	2 dimensional parallel drive type
Optical Source	Semiconductor laser
Wave length	780 nm
Tracking system	3 beam tracking servo type

Others

Digital Filter	8 time oversampling type
Analog filter	Analog 2 pole RC type
D/A converter	ΣDECO type

Electrical

Description		Unit	Norminal	Limit
Output voltage at 1 kHz		V	2	2 ± 0.2
Signal to noise ratio with filter 30 kHz		dB	85	75
Distortion and noise with filter 30 kHz	1 kHz	%	0.15	
	20 kHz	%	0.15	
Frequency response at 40 Hz-20 kHz		dB	±3	
Channel separation at 1 kHz 0 dB		dB	50	
De-emphasis:	5 kHz	dB	-4.5	± 0.3
	16 kHz	dB	-9.1	± 0.3

Environmetal

Test to specification
Temperature between 59 °F (15°C) and 95 °F (35 °C) and relative humidity between 45% and 75%, with power supply voltage of 10% the normal supply voltage.
Test disc: SONY YEDS-7, Type-3 or A.BEX TCD-781.

Operation
Unit must work properly and correctly at the temparature range from 32°F (0°C) to 113 °F(45 °C) and the relative humidity from 40% to 80%, and with the supply voltage.

Storage
Teperature test: 48 hours each at -40 °F(-40 °C) and 149 °F(65 °C).
Humidity test: 40 °C 95% relative humidity.

Deck Section

Type	Double cassette deck with dolby B NR system.
Track system	4 track, 2 channel stereo playback (Deck A) and Recording/Playback (Deck B)
Recording system	AC bias (bias frequency: 105 kHz)
Erasing system	AC
Tape speed	1-7/8 inch/sec (4.76 cm/sec)
Heads	Magnetic recording/playback rotary (reverse head x 1) Magnetic playback one way (one way head x1)
Motor	Electronic controlled DC motor
Wow and flutter	Less than 0.25% (WRMS)
Winding time (FF/REW)	Approximately 120 seconds with C-60 cassette tape
Frequency response (at - 20 dB)	Normal tape: 40 Hz ~ 16 kHz CrO_2 tape: 40 Hz~16 kHz
Signal to noise ratio Unweighted:	Dolby NR off: 45 dB Dolby NR B: 47 dB
Weighted:	Dolby NR off: 46 dB Dolby NR B: 55 dB
3rd harmonic distortion	Less than 3.5% at 333 Hz 0 dB, recording/playback
Built in features	Dolby "B" NR system Relay playback High/normal speed dubbing Auto tape selector (both deck A, deck B) Auto music search Reverse mode selector CD synchronous dubbing

General

Power consumption (RMS at 6 ohms),	30 W + 30 W
Dimensions (WxHxD)	270 x 327 x 300 mm
Weight (Net)	8.8 kg

Power requirements:
A: 120 V 60 HZ for American/Canadian version
B: 120/220 V, 60/50 Hz for multy-voltage version (switchable)
D: 230 V 50 Hz German/Gerneral European version
E: 240 V 50 Hz for UK/Australian version
G: 220 V 50 Hz for Other Area

Notes:
1. Normal specs represent the design specs. All unit should be able to approximate these some will exceed and some may drop slight below these specs. Limit specs represent the absolute worst conditon that still might be considered. Acceptable in no case should a unit fail to meet limit specs.
2. This manual is based on the American (A) standard, and provides information on regional circuit modification through the use of alternate schematic diagrams or wiring diagram, and information on regional component variations through the use of parts Design and specifications subject to change without notice.

DISASSEMBLY

1. REMOVE THE TOP COVER (See Figure 4)

1) Removes 9 screws (① to ⑨) holding the top cover
2) Stretch out the top cover and the remove.

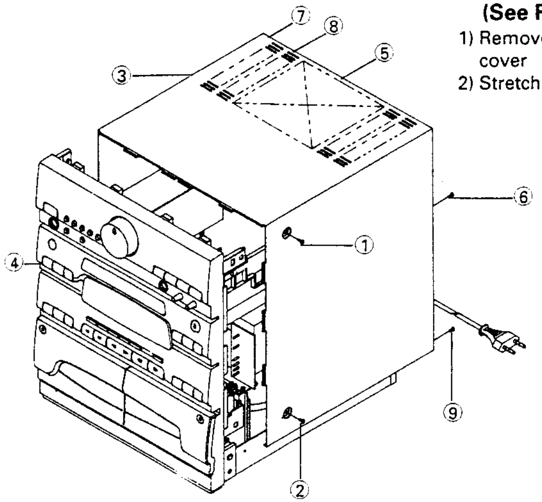


Figure 4

2. REMOVE THE VOLUME BOARD (See Figure 5)

1) Pull the main volume knob up to the front.
2) Remove 2 screws (① to ②).
3) Pull out the volume board from the main board.

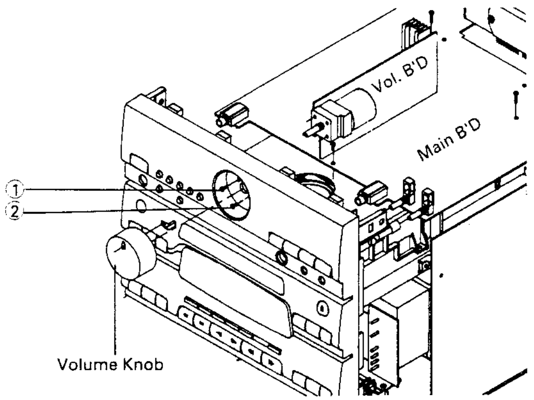


Figure 5

3. REMOVE THE MAIN BOARD WITH CHASSIS BACK A (See Figure 6)

1) Remove 1 screw (①).
2) Remove 2 screws (② to ③).
3) Disconect CNT101, CNT105, CNT111, CNT701, CNT704, CNT801 and CNT703 (Card Cable).
4) Pushing the top of the Wafey (CNT602, CNT603), Carefully pull up the wire.

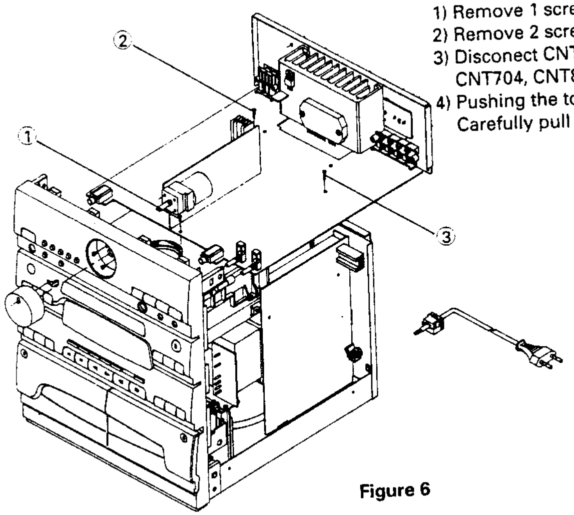


Figure 6

4. REMOVE THE FRONT PANEL ASSEMBLY (See Figure 7)

1) Remove 2 screws (① to ②) both panel side.
2) Remove 2 screws (③ to ④) Bottom of the front panel.
3) Disconect card cable (CNT806) from the CD Board.
4) Release the 2 taps (attached the front panel) from the main frame.

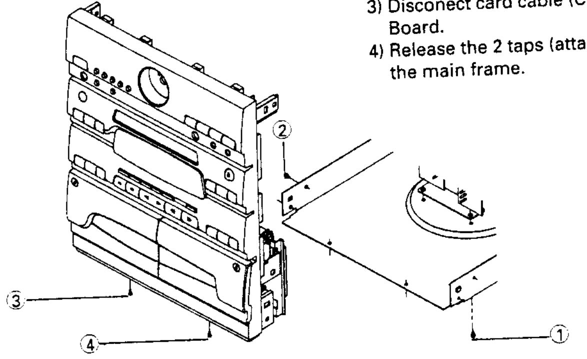


Figure 7

5. REMOVE THE CD MECHANISM
(See Figure 8)

1) Disconect CNT802, CNT803, CNT804, CNT805 From the CD Board.
2) Remove 4 screws (① to ④).

6. REMOVE THE CD BOARD

- Remove 2 screws (⑤ to ⑥).
- Remove 1 screw (⑦).(KS only).

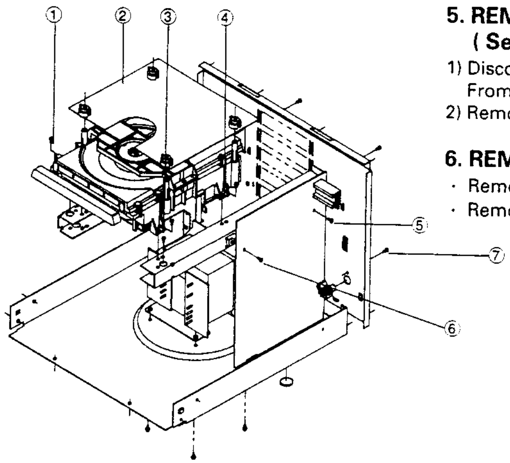


Figure 8

7. REMOVE THE DECK MECHANISM (See Figure 9)

1) Remove 4 screws (① to ④).
2) Pull up the bracket damper L/R to the back hold it up.
3) Remove 3 screws (⑤ to ⑦).
4) Pull up the mechanism to the back hold it up.

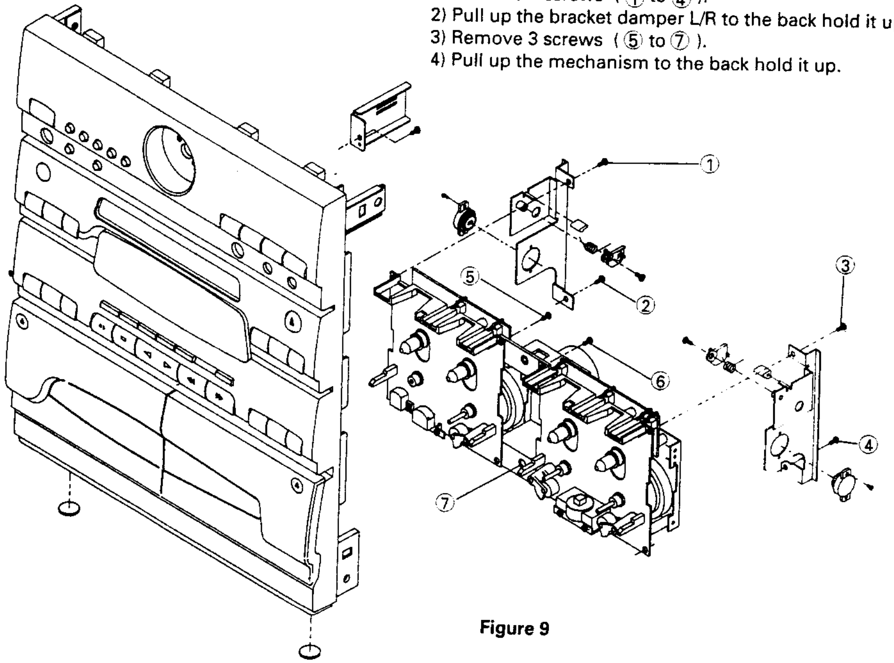


Figure 9

8. REMOVE THE FRONT BOARD (See Figure 10)

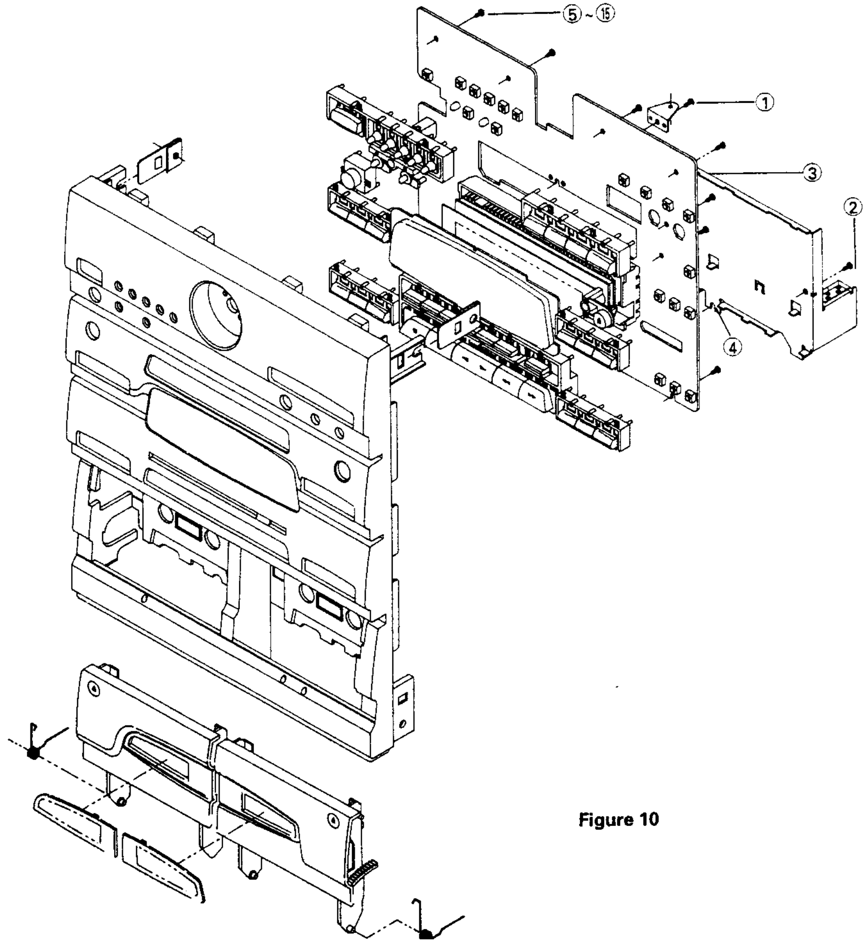
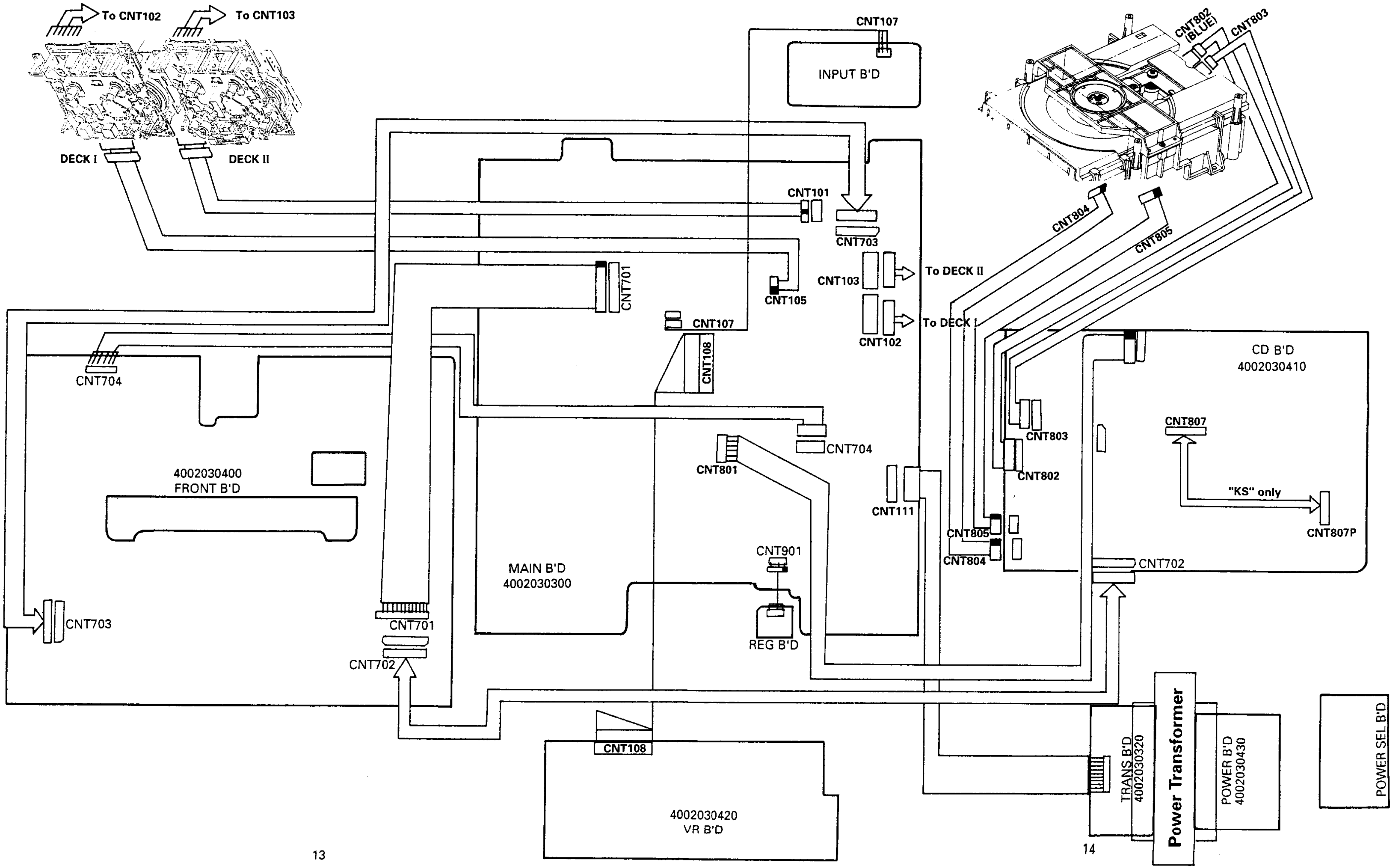


Figure 10

1) Remove 1 screw (①) with bracket P.C. Board.(#36).
2) Remove 3 screws (② to ④) with bracket frame (#35).
3) Remove 11 screws (⑤ to ⑮).

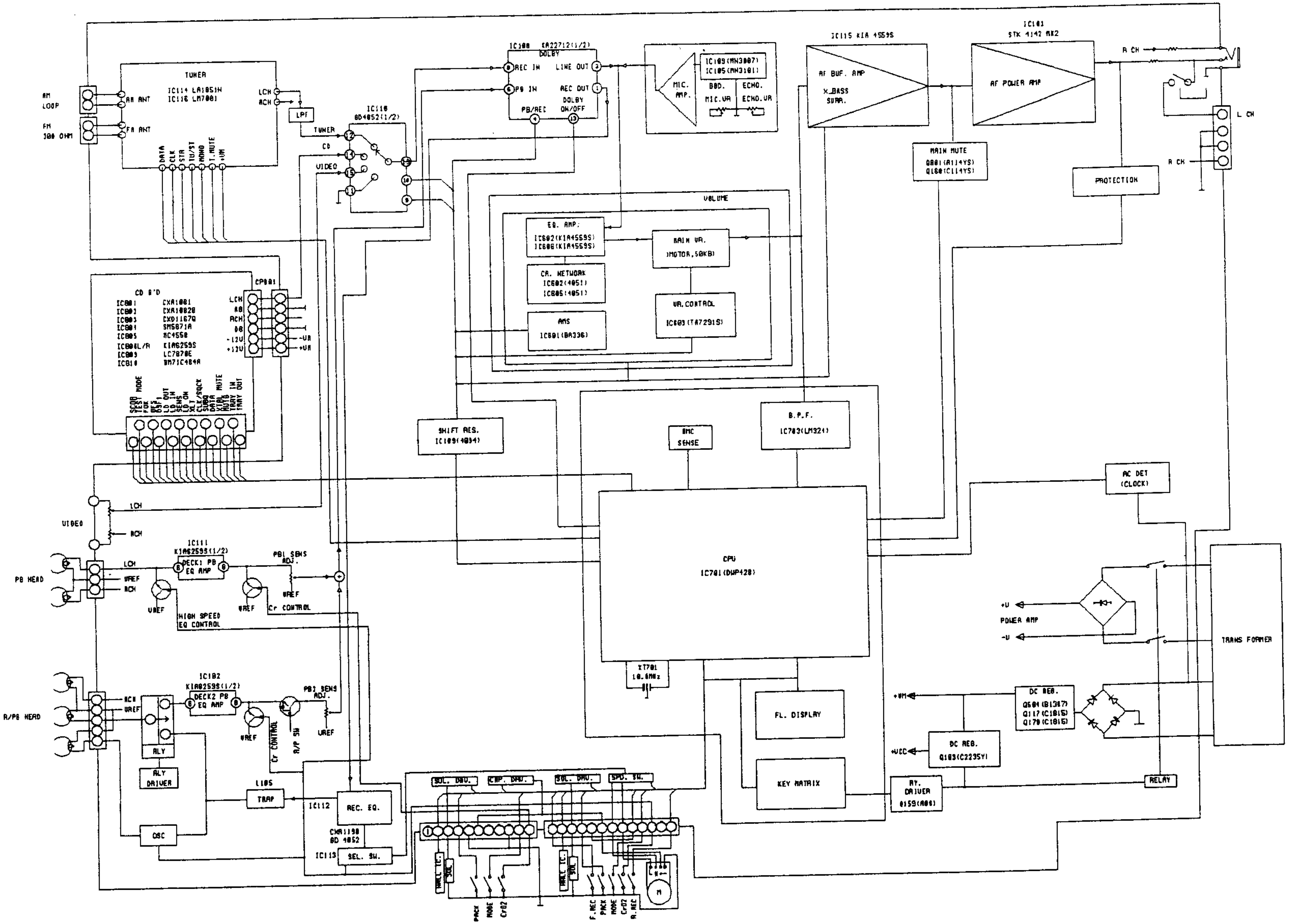
WIRING DIAGRAM

Model No. : P-333R


To CNT102
To CNT103
DECK I
DECK II
CNT107
INPUT B'D
CNT802 (BLUE)
CNT803
CNT101
CNT703
CNT804
CNT805
CNT701
CNT105
CNT103
To DECK II
To DECK I
CNT102
CNT107
CNT108
CNT704
CD B'D
4002030410
CNT704
CNT803
CNT807
CNT801
4002030400
FRONT B'D
CNT802
"KS" only
CNT111
CNT805
CNT807P
CNT804
CNT702
CNT901
MAIN B'D
4002030300
CNT703
CNT701
REG B'D
CNT702
Power Transformer
TRANS B'D
4002030320
POWER B'D
4002030430
POWER SEL B'D
CNT108
4002030420
VR B'D

BLOCK DIAGRAM

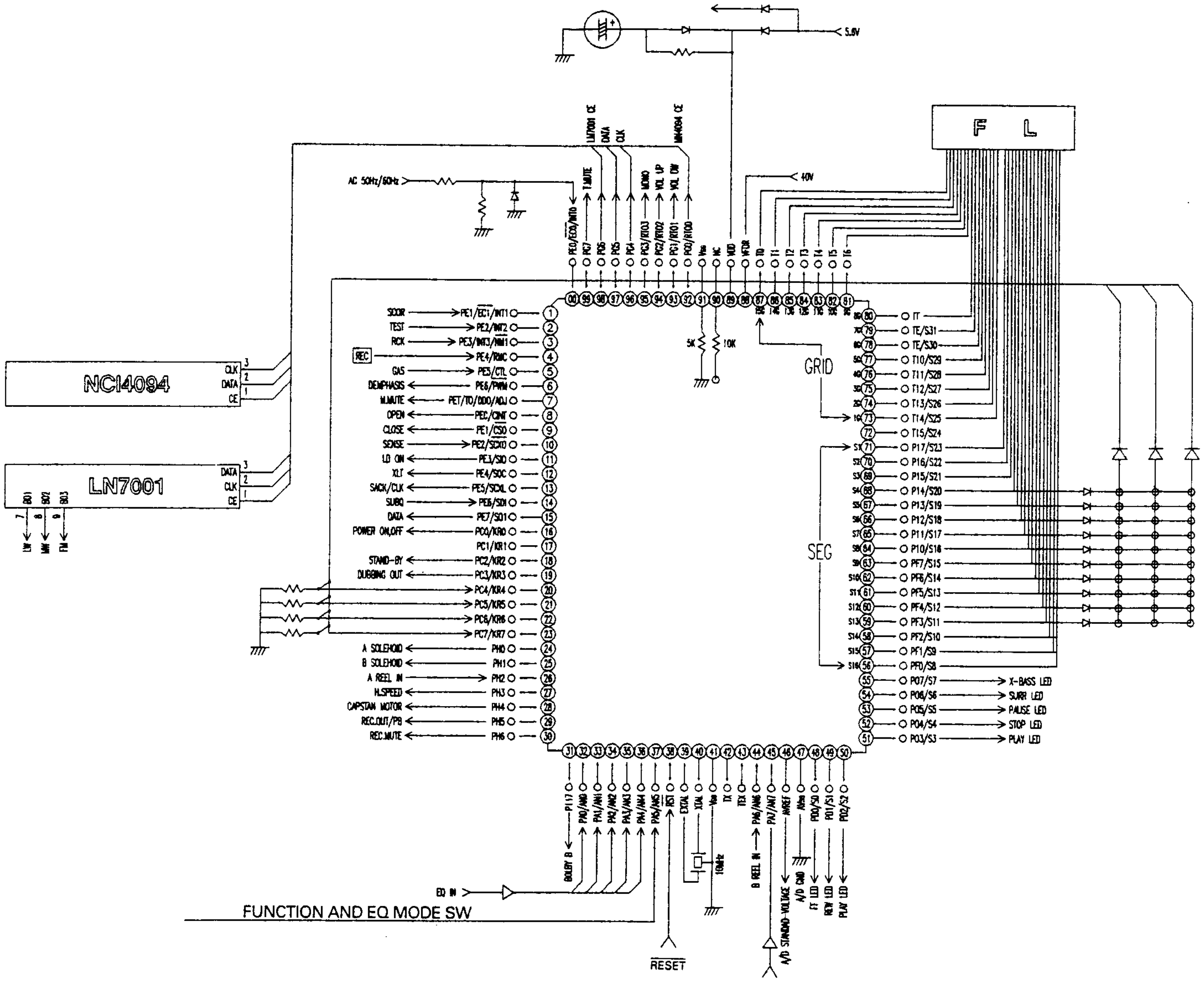
Model No: P-333R


AM LOOP
FM 300 OHM
AM ANT
FM ANT
TUNER
IC114 LA1851N
IC116 LM7001
LCH
RCH
DATA
CLK
STR
TU/ST
MONO
T.MUTE
+VM
LPF
IC110
BD4052(1/2)
TUNER
CD
VIDEO
CD B'D
IC801 CXA1081
IC802 CXA1082B
IC803 CXD1167Q
IC804 SM5871A
IC805 NC4558
IC808L/R KIA6259S
IC809 LC7870E
IC810 BM71C4B4A
CP801
LCH
AG
RCH
DG
-12V
+12V
-VR
+VR
SCOR
TEST MODE
FOK
BEF
DSF1
LD OUT
LD IN
SENS
LD ON
XLT
CLK/SQCK
SUBQ
DATA
XTAL MUTE
MUTB
TRAY IN
TRAY OUT
IC100 KA22712(1/2)
DOLBY
REC IN
PB IN
LINE OUT
REC OUT
PB/REC
DOLBY ON/OFF
IC109(MN3007)
IC105(MN3101)
MIC. AMP.
BBD.
MIC.VR
ECHO.
ECHO.VR
IC115 KIA 4559S
AF BUF. AMP
X_BASS SURR.
IC101
STK 4142 MK2
AF POWER AMP
R CH
L CH
R CH
MAIN MUTE
Q801(A114YS)
Q160(C114YS)
PROTECTION
VOLUME
EQ. AMP:
IC602(KIA4559S)
IC606(KIA4559S)
MAIN VR.
(MOTOR,50KB)
CR. NETWORK
IC602(4051)
IC605(4051)
VR.CONTROL
IC603(TA7291S)
AMS
IC601(BA336)
SHIFT RES.
IC109(4094)
BMC SENSE
B.P.F.
IC703(LM324)
AC DET (CLOCK)
CPU
IC701(DWP428)
XT701
10.0MHz
+V
POWER AMP
-V
TRANS FORMER
FL. DISPLAY
KEY MATRIX
+VM
DC REG.
Q504(B1367)
Q117(C1815)
Q170(C1815)
+VCC
DC REG.
Q103(C2235Y)
RY. DRIVER
Q159(A06)
RELAY
VIDEO
LCH
RCH
PB HEAD
LCH
VREF
RCH
IC111
KIA6259S(1/2)
DECK1 PB EQ AMP
VREF
HIGH SPEED EQ CONTROL
PB1 SENS ADJ.
VREF
VREF
Cr CONTROL
R/PB HEAD
RCH
VREF
IC102
KIA6259S(1/2)
DECK2 PB EQ AMP
VREF
Cr CONTROL
R/P SW
PB2 SENS ADJ.
VREF
RLY
RLY DRIVER
L105
TRAP
IC112
REC. EQ.
CXA1198
BD 4052
IC113
SEL. SW.
OSC
SOL. DRV.
CMP. DRV.
SOL. DRV.
SPD. SW.
HALL IC.
SOL
PACK
MODE
CrO2
HALL IC.
SOL
F.REC
PACK
MODE
CrO2
R.REC
M

CIRCUIT DESCRIPTION

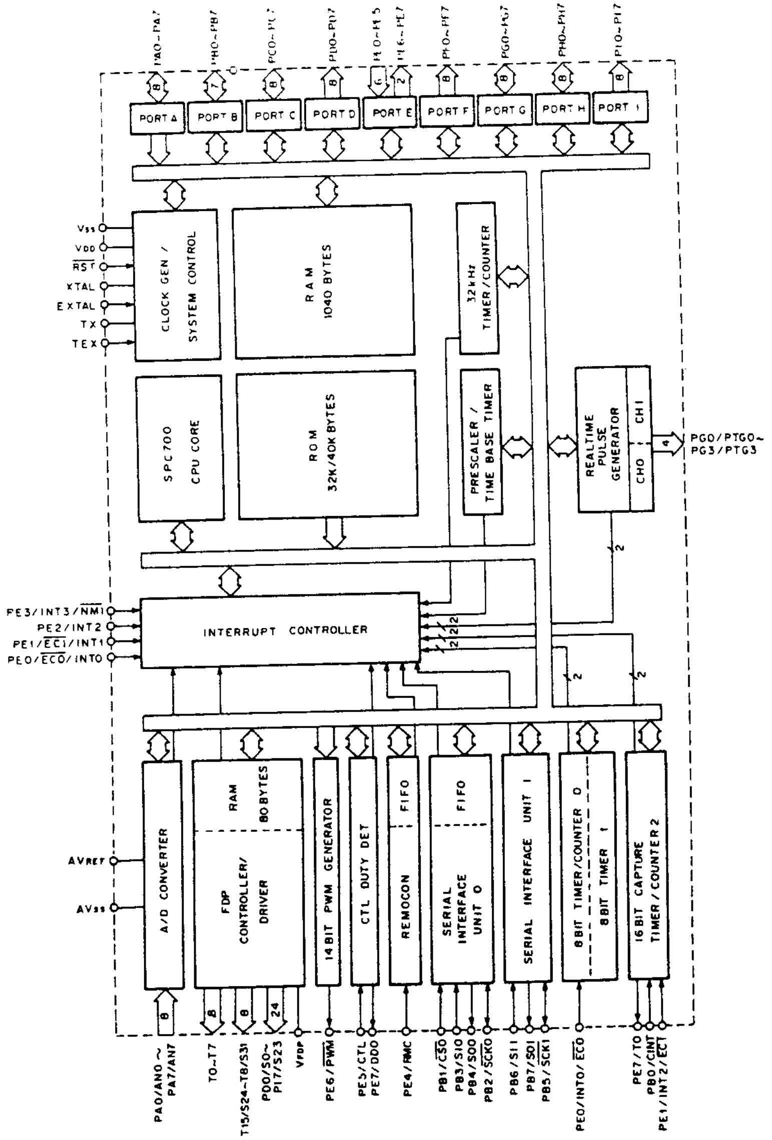
IC701:CXP82432(CMOS 8 bit 1- CHIP MICROCOMPUTER)

1. Pin Connection Diagram



5.6V
40V
F L
AC 50Hz/60Hz
LM7001 CE
DATA
CLK
MM4094 CE
T.MUTE
MONO
VOL UP
VOL DW
PE0/EC0/INT0
PG7
PG6
PG5
PG4
PG3/RTO3
PG2/RTO2
PG1/RTO1
PG0/RTO0
Vss
NC
VDD
VFDR
T0
T1
T2
T3
T4
T5
T6
5K
10K
GRID
SEG
NC14094
CLK
DATA
CE
LN7001
BD1
BD2
BD3
LW
MW
FM
SDOR
TEST
RCK
REC
GAS
DEMPHASIS
M.MUTE
OPEN
CLOSE
SENSE
LD ON
XLT
SACK/CLK
SUBQ
DATA
POWER ON,OFF
STAND-BY
DUBBING OUT
A SOLENOID
B SOLENOID
A REEL IN
H.SPEED
CAPSTAN MOTOR
REC.OUT/PB
REC.MUTE
PE1/EC1/INT1
PE2/INT2
PE3/INT3/NMI
PE4/RMC
PE5/CTL
PE6/PWM
PE7/TO/DDO/ADJ
PEC/CINT
PE1/CS0
PE2/SCK0
PE3/SI0
PE4/SOC
PE5/SCKL
PE6/SDI
PE7/SO1
PC0/KR0
PC1/KR1
PC2/KR2
PC3/KR3
PC4/KR4
PC5/KR5
PC6/KR6
PC7/KR7
PH0
PH1
PH2
PH3
PH4
PH5
PH6
IT
TE/S31
TE/S30
T10/S29
T11/S28
T12/S27
T13/S26
T14/S25
T15/S24
P17/S23
P16/S22
P15/S21
P14/S20
P13/S19
P12/S18
P11/S17
P10/S16
PF7/S15
PF6/S14
PF5/S13
PF4/S12
PF3/S11
PF2/S10
PF1/S9
PF0/S8
P07/S7
P06/S6
P05/S5
P04/S4
P03/S3
X-BASS LED
SURR LED
PAUSE LED
STOP LED
PLAY LED
PI17
PA0/AN0
PA1/AN1
PA2/AN2
PA3/AN3
PA4/AN4
PA5/AN5
RST
EXTAL
XTAL
Vss
TX
TEX
PA6/AN6
PA7/AN7
AVREF
AVss
PD0/S0
PD1/S1
PD2/S2
BOLBY B
10MHz
B REEL IN
A/D STANDARD-VOLTAGE
A/D GND
FT LED
REV LED
PLAY LED
EQ IN
FUNCTION AND EQ MODE SW
RESET

2. Block Diagram

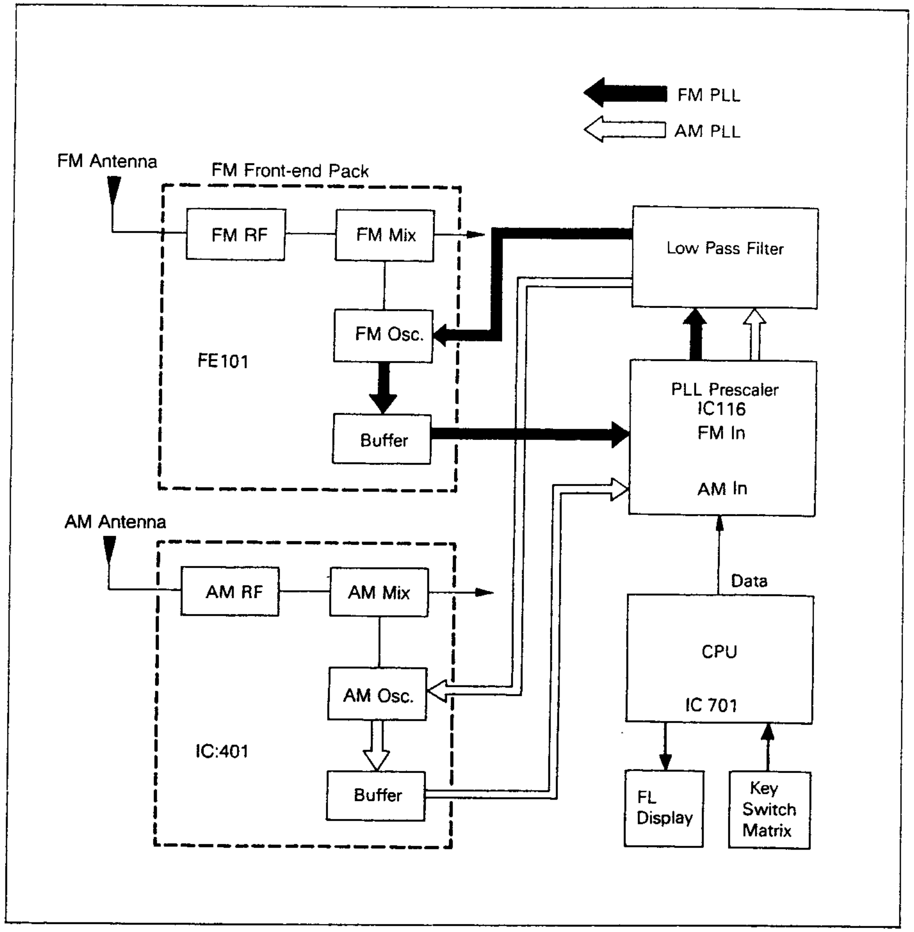

PA0~PA7
PB0~PB7
PC0~PC7
PD0~PD7
PE0~PE5
PE6~PE7
PF0~PF7
PG0~PG7
PH0~PH7
PI0~PI7
PORT A
PORT B
PORT C
PORT D
PORT E
PORT F
PORT G
PORT H
PORT I
VSS
VDD
RST
XTAL
EXTAL
TX
TEX
CLOCK GEN / SYSTEM CONTROL
RAM 1040 BYTES
32kHz TIMER / COUNTER
SPC700 CPU CORE
ROM 32K/40K BYTES
PRESCALER / TIME BASE TIMER
REALTIME PULSE GENERATOR
CH0
CH1
PG0/PTG0~PG3/PTG3
PE3/INT3/NMI
PE2/INT2
PE1/ECI/INT1
PE0/ECO/INT0
INTERRUPT CONTROLLER
AVREF
AVSS
A/D CONVERTER
RAM 80 BYTES
FDP CONTROLLER/ DRIVER
14 BIT PWM GENERATOR
CTL DUTY DET
FIFO
REMOCON
FIFO
SERIAL INTERFACE UNIT 0
SERIAL INTERFACE UNIT 1
8BIT TIMER/COUNTER 0
8BIT TIMER 1
16 BIT CAPTURE TIMER / COUNTER 2
PA0/AN0~PA7/AN7
T0~T7
T15/S24~T8/S31
PD0/S0~PI7/S23
VFDP
PE6/PWM
PE5/CTL
PE7/DD0
PE4/RMC
PB1/CS0
PB3/SI0
PB4/SO0
PB2/SCK0
PB6/SI1
PB7/SO1
PB5/SCK1
PE0/INT0/ECO
PE7/TO
PB0/CINT
PE1/INT2/ECI

3. Pin Functions

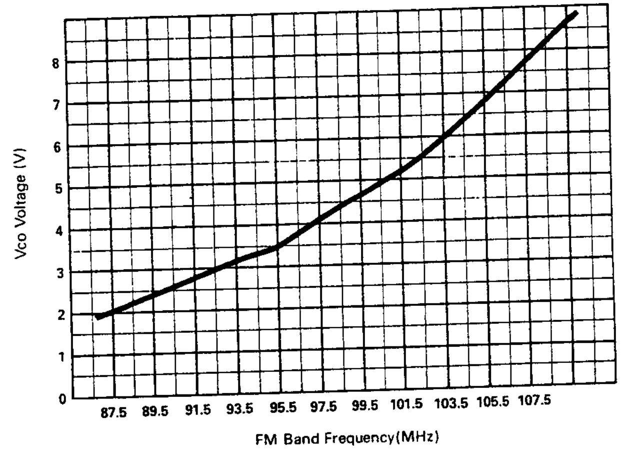
Symbol	Input/Output	Functions		
PA0/AN0 to PA7/AN7	I/O/Analog Input	(Port A) B-bit I/O port. Each bit can be individually specified as input or output. (8 pins)	A/D converter analog input pins.	
PB0/CINT	I/O/Input	(Port B) 8-bit I/O port. The low 7 bits can be individually specified as input or output. The most significant bit (PB7) is output only. (8pins)	16-bit timer/counter external capture input pin	
PB1/$\overline{\text{CSO}}$	I/O/Input		Serial inter face(CH0) chip select input pin.	
PB2/$\overline{\text{SCKO}}$	I/O/I/O		Serial data (CH0) I/O pin.	
PB3/S10	I/O/Input		Serial data (CH0) input pin.	
PB4/SO0	I/O/Output		Serial data (CH0) output pin.	
PB5/$\overline{\text{SCK1}}$	I/O/I/O		Serial clock (CH1) I/O pin.	
PB6/SI1	I/O/Input		Serial data (CH1) input pin.	
PB7/SO1	Output/Output		Serial data (CH1) output pin.	
PC0/KR0 ~ PC7/KR7	I/O/Input	(port C) 8-bit I/O port. Each bit can be individually specified as input or output. Each can drive a 12 mA sink current. (8 pins)	Key return input pins for performing key scans with the FDP segment signals.	
PD0/S0 ~ PD7/S7	Output/Output	(Port D) 8-bit output port. (8 pins)	FDP segment signal output pins.	
PE0/INT0/$\overline{\text{EC0}}$	Input/Input/Input	(Port E) 8-bit input/output port. The low 6 bits are inputs, and the high 2 bits are outputs. (8 pins)	External interrupt request input pins. (4 pins)	Timer/counter external event input pins. (2 pins)
PE0/INT0/$\overline{\text{EC1}}$	Input/Input/Input			
PE2/INT2	Input/Input			
PE3/INT3/$\overline{\text{NMI}}$	Input/Input/Input			Non-maskable interrupt request input pin.
PE4/RMC	Inupt/Input			
PE5/CTL	Input/Input		Remote control unit receive circuit input pin.	
PE6/$\overline{\text{PWM}}$	Output/Output		14-bit PWM output pin.	
PE7/TO/DD0/ADJ	Output/Output Output/Output		16-bit timer/counter square wave output pin. CTL duty detection output pin, and pin for frequency division output of 32 kHz oscillator	
PF0/S8 ~ PF7/S15	Output/Output	(Port F) 8-bit output port. (8 pins)		FDP segment signal output pins.

Symbol	Input/Output	Functions	
PG0/PT0 o ~ PG3/RT 03	I/O/Output	(Port G) 8-bit I/O port. Each bit can be individually specified as input or output. The lower four bits are output logically ORed with the RTO contents. (8 pins)	Realtime pulse generator (RTG) outputs. These function as high-precision realtime. pulse output ports. (4 pins)
PG4 ~ PG7	I/O		
PH0 ~ PH7	I/O	(Port H) 8-bit I/O port. Each bit can be individually specified as input or output. (8 pins)	
P10/S16 ~ P17/S23	Output/Output	(Port1) 8-bit output port. (8 pins)	FDP segment signal output pins.
T8/S31 ~ T15/S24	Output/Output	Dual-use output pins for FDP timing signals adn FDP segment signals.	
T0 ~ T7	Output	FDP timing signal output pins	
V_{FDP}		FDP voltage supply pin if an internal resistor was specified with a mask option.	
EXTAL	Input	Crystal interface pins for system clock oscillation. If the clock is supplied externally then it should be input to the EXTAL pin. The XTAL pin should then be left open	
XTAL	Output		
TEX	Input	Crystal interface pins for the 32 kHz timer/counter's oscillator. A 32-kHz liquid crystal oscillator is placed between TEX and TX. When used as an event input, connect the signal source to TEX, and leave TX open.	
TX			
$\overline{\text{RST}}$	I/O	System reset pin, active when "L"	
NC		This pin should be connected to V_{DD} during operation.	
AV_{REF}	Input	A/D converter reference voltage input pin.	
AV_{SS}		A/D converter ground pin.	
V_{DD}		Positive power supply pin.	
V_{SS}		GND pin.	

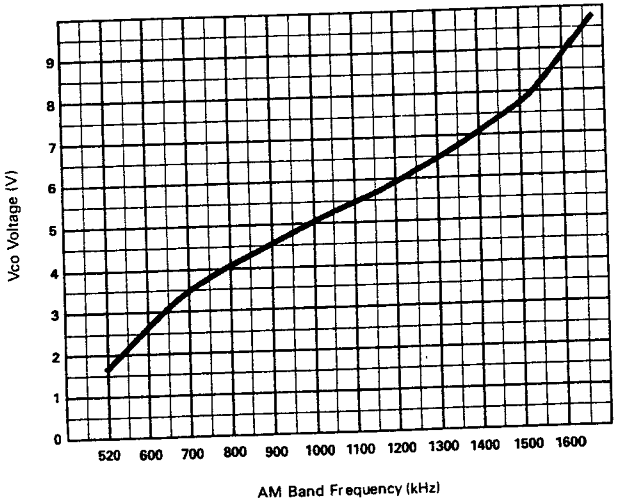
4. Digital Tuning System Description


FM PLL
AM PLL
FM Antenna
FM Front-end Pack
FM RF
FM Mix
FM Osc.
FE101
Buffer
Low Pass Filter
PLL Prescaler
IC116
FM In
AM In
AM Antenna
AM RF
AM Mix
AM Osc.
IC:401
Buffer
Data
CPU
IC 701
FL Display
Key Switch Matrix

• Vco vs. FM Band Frequency Curve

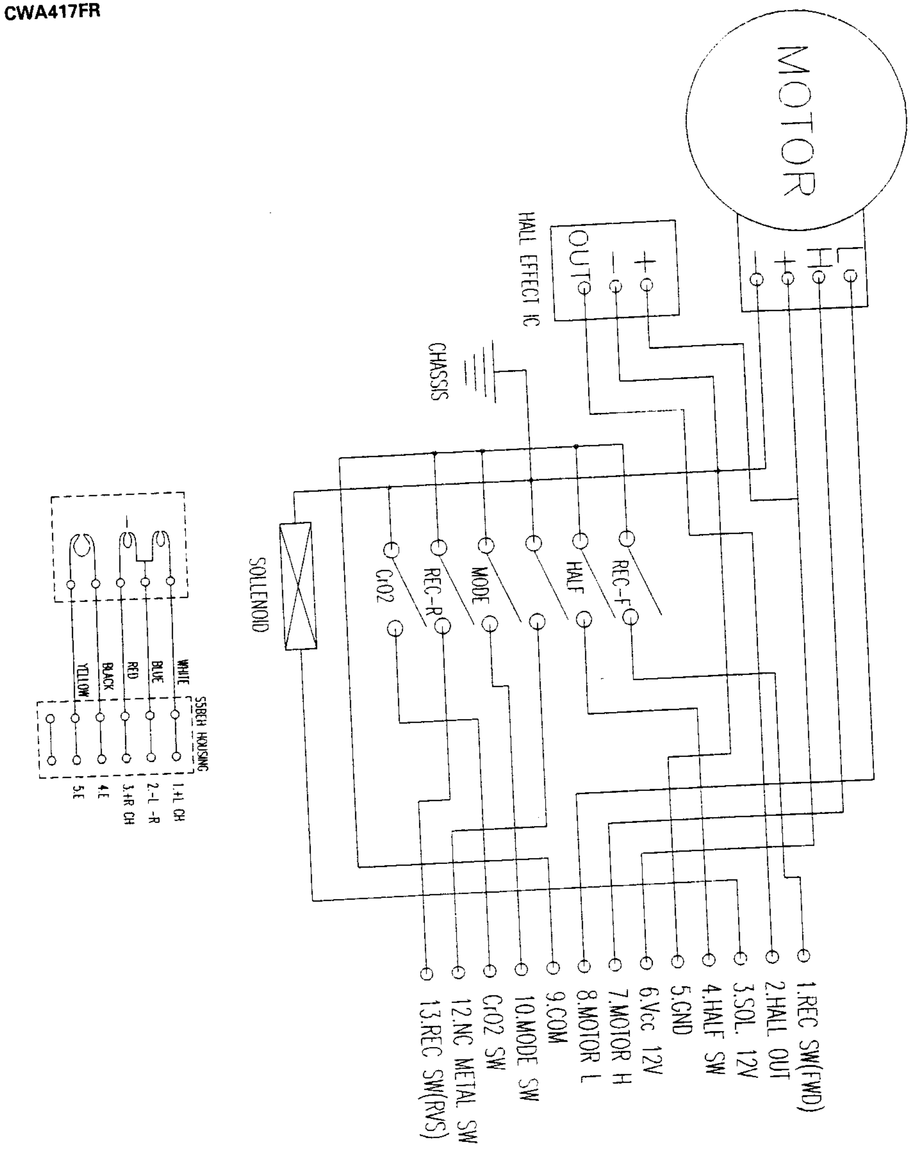


• Vco vs. AM Band Frequency Curve



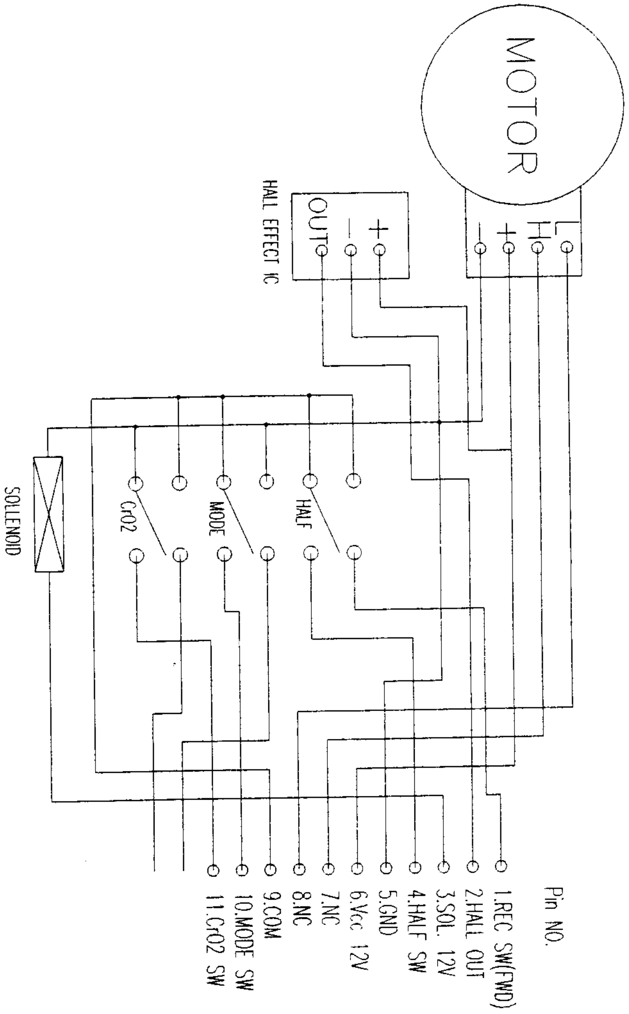
CWA400 (B Deck REC./BACK)

CWA417FR


MOTOR
L
H
+
-
HALL EFFECT IC
OUT
-
+
CHASSIS
SOLLENOID
CrO2
REC-R
MODE
HALF
REC-F
WHITE
BLUE
RED
BLACK
YELLOW
S5BCH HOUSING
1.+L CH
2.-L -R
3.+R CH
4.E
5.E
1.REC SW(FWD)
2.HALL OUT
3.SOL. 12V
4.HALF SW
5.GND
6.Vcc 12V
7.MOTOR H
8.MOTOR L
9.COM
10.MODE SW
11.CrO2 SW
12.NC METAL SW
13.REC SW(RVS)

CWA400 (A Deck PLAY/BACK)

CWA417FR


MOTOR
L
H
+
-
HALL EFFECT IC
OUT
-
+
SOLLENOID
CrO2
MODE
HALF
Pin NO.
1.REC SW(FWD)
2.HALL OUT
3.SOL. 12V
4.HALF SW
5.GND
6.Vcc 12V
7.NC
8.NC
9.COM
10.MODE SW
11.CrO2 SW

FLUORESCENT

FIP 15JM80

1. Features: Island grid type.

2. Operating: Multiplex drive

3. Specifications

A) Number of pins ······ 37 Pin
B) Temperature ······ -20 ~ 70 °C
C) Operating voltage
Filament voltage E_f ······ 4.7 ~ 5.7 Vac
Anode voltage E_b (Du=1/17.1) ······ 32Vp-p
Grid voltage E_c (Du=1/17.1) ······ 32Vp-p

4. Electrical Characteristics (Test circuit is specified by EIAJ ET-4168B)

Item	Symbol	Connection	Tolerance			Unit
			Min.	Nor.	Max.	
Filament current	I_f	E_f =5.2 Vac	168	187	208	Aac
Anode current	I_b/1, 5, 11, 8, 12, 13, 15	E_f =5.2 Vac E_b =29 Vp-p E_c =29 Vp-p D_u=1/17.1 T_p=224 uS All seg. are Lit.	-	14.5	29	Ap-p
Anode current	I_b/2, 3, 4, 6, 7, 10G		-	9	18	Ap-p
Anode current	I_b/9G		-	8	12	Ap-p
Anode current	I_b/14G		-	24	48	Ap-p
Grid Current	I_c/1, 6, 11, 8, 12, 13, 15		-	14.5	29	Ap-p
Grid Current	I_c/2, 3, 4, 6, 7, 10G		-	9	18	Ap-p
Grid Current	I_c/9G		-	6	12	Ap-p
Grid Current	I_c/14G		-	24	48	Ap-p
Anode cut off	Ebco	E_f =5.2 Vac E_c =29 Vp-p D_u=1/17.1 T_p=224 uS ALL seg. are Lit.	-3	-	-	DC
Gird cut off	Ecco	E_f =5.2 Vac E_b =29 Vp-p All seg. are Lit.	-6	-6	-	DC

* Theres values are specified when E_b and Ec are supplied from the center tap of the filament transformer.

5. Terminal connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Pin Name	F1	F1	F1	NP	NP	P S16	P S15	P r	P p	P n	P m	P k	P j	P h	P g	P f	P e
Pin No.	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
Pin Name	P d	P c	P b	P a	NP	NP	NP	NP	NP	NP	NP	NP	15G	14G	13G	12G	11G
Pin No.	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**		
Pin Name	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	F2	F2	F2		

Notes:

E_f: Filament voltage
E_c: Grid voltage
T_p: Pulse duration
F: Filament
G: Grid
P: Anode

E_b: Enode voltage
D_u: Duty cycle
T_b: Blanking duration
N_p: No Pin
N_c: No connection

6. LEAD IDENTIFICATION (See Figure 11)

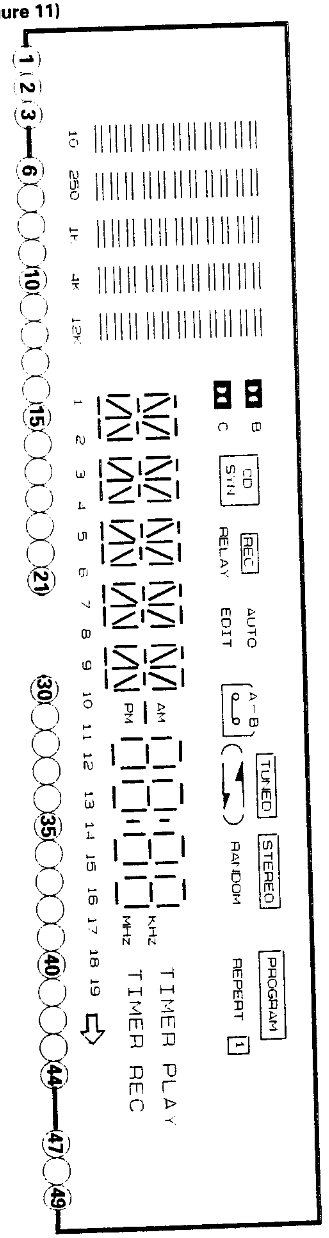

1
2
3
6
10
15
21
30
35
40
44
47
49
10
250
1K
4K
12K
B
C
CD SYN
REC
RELAY
AUTO
EDIT
A-B
TUNED
STEREO
RANDOM
PROGRAM
REPEAT
1
AM
PM
KHz
MHz
TIMER PLAY
TIMER REC
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Figure 11

PICKUP REPLACEMENT

Caution:
Laser diodes are extremely suceptable to damage from static electricity. Even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly. When replacing the pickup take approprate measures, such as using a conductive mat and a grounded soldering iron to protect the laser diode from static damage.

1. Remove the CD mechanism assembly by refering to the disassembly instructions (See Figure 12).

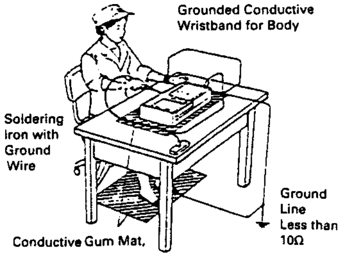

Grounded Conductive Wristband for Body
Soldering Iron with Ground Wire
Ground Line Less than 10Ω
Conductive Gum Mat.

Figure 12

2. Remove four screws (See Figure 13).

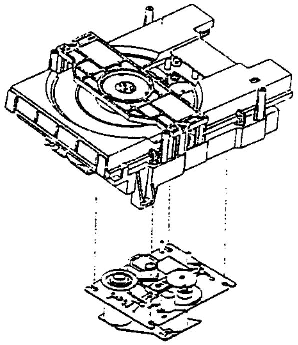


Figure 13

3. Remove the Gear A (See Figure 14).
4. Pull out the Slide Shaft.

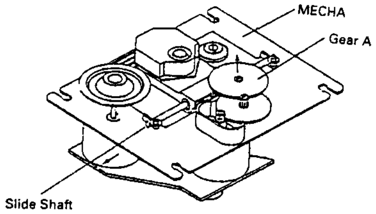

MECHA
Gear A
Slide Shaft

Figure 14

5. Remove the pickup (See Figure 15).

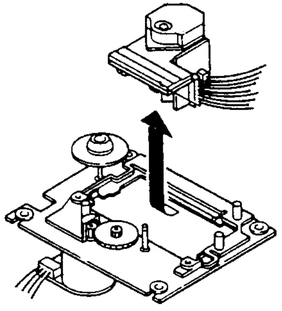


Figure 15

6. After you connect the wire connector, desolder and remove the shorting tab (See Figure 16).

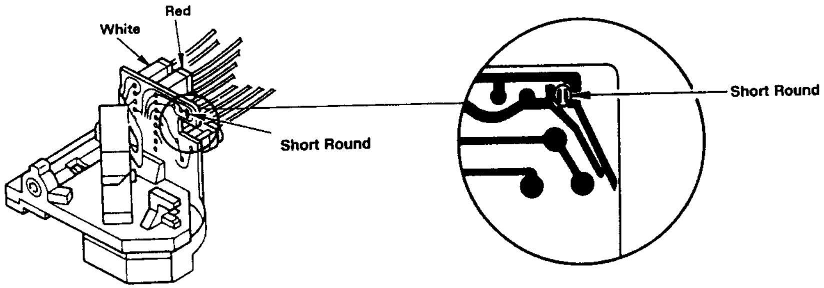

Red
White
Short Round
Short Round

Figure 16

7. Refer to the exploded view of the compact disc mechanism on page 67 for detailed illustrations.

OPERATION CHECK

When the power switch is terned on after the chucking arm is removed, observe the objective lens and chuck the following. (The optical system block should be at the lead-in position when it is checked.)

- The disc table should be at the innermost position after the chucking arm is removed.
- The diffused light of the laser beam can be seen when the power switch is turned on.
- Vertical (up down) movement of the objective lens take place 2 or 3 times.

ALIGNMENT PROCEDURES

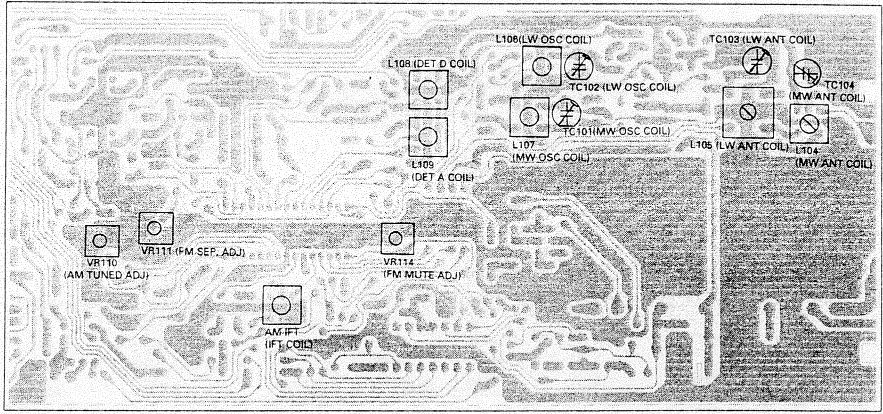
TUNER

Equipment Required

- AM signal generator.
- Oscilloscope
- AC voltmeter.
- Stereo modulator
- Audio generator
- Distortion meter
- DC voltmeter
- Frequency counter

Note: Remove line cord antenna from FM external antenna terminal when aligning.

Test Points (Main Board)



1. AM IF and RF Alignment

- Output of signal generator should not be greater then necessary to obtain an optimum output reading.
- Signal generator modulation: 30%.
- Switch: Press to AM.

No	Subject	Feed Signal		Setting	Measure	Adjust	Adjust	Remark
		From	To					
1.	Tuning Voltage	520 kHz	1710kHz	*1) 520 kHz	Connect DVM VT	L107	DC1±0.2 V	
		1619 kHz		*2) 1710 kHz		TC101	DC8.5±0.3 V	
		• Repeat the step *1) and *2) until DVM reads the tuning voltage mentioned above. • In case the freq. is 9 kHz, the freq. of AM SG and appliance should be changed to *1) 522 kHz *2) 1611 kHz.						
2.	IF	AM IF genescope	Antenna	1000 kHz	Connect IF genescope	AM IFT	Symmetrical curve on AM IF genescope	
3.	RF Runing	*1) AM SG 603 kHz, 78 dB 400 Hz (30% Mod.)	Antenna	603 kHz	Output Connect AC Voltmeter & oscilloscope	L104	Maximize audio output	AM SG. Test Loop Antenna. 60cm Appliance
		*2) AM SG 1400 kHz, 74 dB 400 Hz (30% Mod.)	Antenna	1400 kHz		TC104		
		• Feed signal should be fed to loop antenna through the TEST Loop ant, 60cm distant from the appliance. • Repeat the step *1) and *2) until no further improvement occurs. • In case the freq. is 9 kHz, the freq. of AM SG and appliance should be changed to *1) 603 kHz *2) 1404 kHz.						
4.	Signal Meter	AM SG 1000 kHz, 84 dB 400 Hz (30% Mod.)	Antenna	1000 kHz		VR110	Tuned light on	
		• In case the frequency step is 9 kHz, the frequency of AM SG and appliance should be changed to 999 kHz.						

2. LW Alignment

- Selector SW: Tuner, MW/LW
- This adjustment is necessary to 3 band (MW/LW/FM).

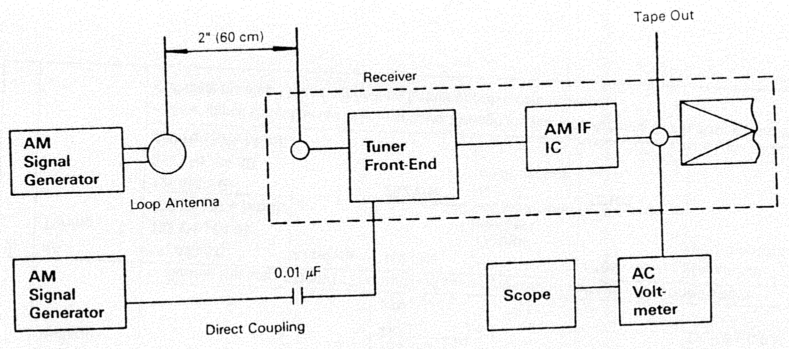
No	Subject	Feed Signal		Setting Appliance	Measure Output	Adjust Point	Adjust For	Remark
		From	To					
1	Tuning Voltage	279 kHz	279 kHz	*1) 153 kHz	Connect DVM VT	L106 TC102	DC2±0.2 V	
				*2) 279 kHz			DC5.5±0.2 V	
		• Repeat the step *1) and *2) until DVM reads the tuning voltage mentioned above						
2.	RF Tuning	*1) AM SG 162 kHz, 84 dB 400 Hz (30% Mod).	Antenna	162 kHz	Output connect AC voltmeter & oscilloscope	L105	Maximize audio output	
		*2) AM SG 252 kHz, 84 dB 400 Hz (30% Mod).		252 kHz		TC103		
		• Feed signal should be fed to loop antenna through the test loop Antenna 60 cm distant from the appliance • Repeat the step *1) and *2) until no further improvement occurs.						

3. FM Alignment

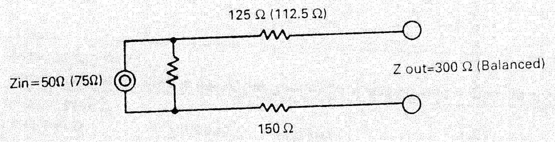
Preparation

- Signal generator output should be no greater than necessary to obtain an optimum output reading.
- Switch: Press to FM.
- Signal generator deviation: 75 kHz.
- Be sure to disconnect FM line cord antenna during alignment.

No	Subject	Feed Signal		Setting Appliance	Measure Output	Adjust Point	Adjust For	Remark
		From	To					
1.	Tuning voltage	87.5 MHz	107.9 MHz	87.5 MHz	Connect DVM VT		DC2.0±0.2 V	
				107.9 MHz			DC8.0±0.2 V	
2.	THD (Mono)	FM SG 98.1 MHz, 60dB 1 kHz (75 kHz Dev.)	Antenna	98.1 MHz Mono	*1) Output connect DVM	L109	DC.0±0.05 V	
					*2) Output connect AC voltmeter & distortion analyzer.	L108	Minimize distortion	
		• Adjust the step *1) 1st and the step *2) next and repeat until to further improvement occurs.						
3.	THD (Stereo)	FM SG 98.1 MHz, 60 dB 1 kHz (75 kHz Dev.) Pilot 19 kHz (9% Mod.)	Antenna	98.1 MHz stereo	Output connect AC voltmetr & distortion.	Front- end.	Minimize distortion	
4.	Mute level	FM SG 98.1 MHz, 15 µV 1 kHz (75 kHz Dev.)	Antenna	98.1 MHz mono	Output connect oscilloscope	VR114	Tuned on	
5	Separation	*1) FM SG 98.1 MHz, 0 dB 1 kHz(75 kHz, Dev.) Pilot 19 kHz (10% Mod.) (L-CH. mode)	Antenna	98.1 MHz stereo	R-CH. mode connect AC voltmeter & distortion analyzer and oscilloscope.	VR111	Minimize output	L-CH mode
		*2) Same as above (R-CH mode)			L-CH. mode connect same as above			R-CH. mode
		• Repeat the step *1) until no further improvement occurs.						

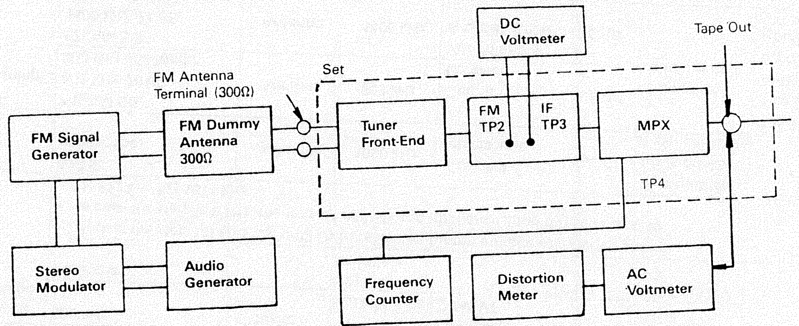

2" (60 cm)
Tape Out
Receiver
AM Signal Generator
Loop Antenna
Tuner Front-End
AM IF IC
AM Signal Generator
0.01 µF
Direct Coupling
Scope
AC Volt-meter

AM Alignment Connection (Figure 17)


125 Ω (112.5 Ω)
Zin=50Ω (75Ω)
Z out=300 Ω (Balanced)
150 Ω

FM Dummy Antenna to 300 Ω Antenna terminal of receiver

FM Dummy Antenna (Figure 18)


DC Voltmeter
Tape Out
Set
FM Antenna Terminal (300Ω)
FM Signal Generator
FM Dummy Antenna 300Ω
Tuner Front-End
FM TP2
IF TP3
MPX
TP4
Stereo Modulator
Audio Generator
Frequency Counter
Distortion Meter
AC Voltmeter

FM RF/IF and MPX Alignment Connection (Figure 19)

CD PART

Equipment Required

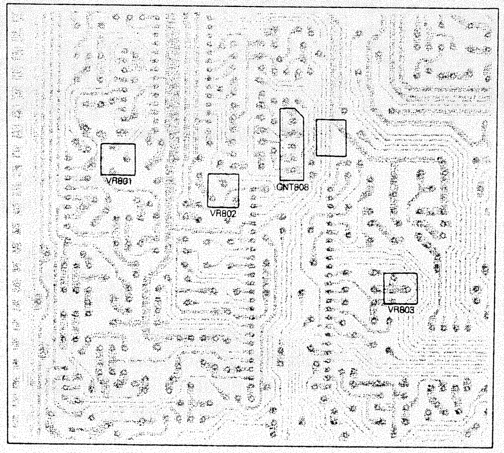
Oscilloscope (over 50 MHz)
Frequency Counter
Test Disc SONY YEDS-7
A Regular Compact Disc

Before Adjustments

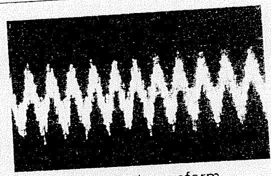
- Make the adjustment with a numeric order.
- Use the dualtrace oscilloscope with high impedance(more than 10M ohm)
- How to enter into the TEST MODE
  1) Do not plug the power cord into the AC outlet.
  2) Short between J889 and J893 on the CDP Board
  3) Plug the power cord.
  4) Any segments don't appears in the display and it means the TEST MODE.
  5) Power on.
  6) All segments appears in the display.
  7) If you press the PLAY button, the TEST MODE changes to the TEST MODE 1.
  8) If you press the PLAY button again, the TEST MODE changes to the TEST MODE 2.
  9) If you press the PLAY button again, the TEST MODE changes to the TEST MODE 3.
- Tentative setting of Volume.
  -Set the semi-fixed resistance tentatively as follows;

VR801 (EF. Balance)	Center Position
VR802 (F. Bias)	Center Position
VR803 (PLL)	Center Position

Test Points (CD Board)



1. Connect between PIN 1(ASY) and PIN 2(G) of CNT 808.

Step	Connect	Setting	Adjust	Remarks
	PLL(Phase Locked Loop) Adjustment			
2	See Figure 20	In the test mode 1	VR 803	Counter reading to be 4.3218 MHz.
3	Disconnect between PIN 1 (ASY) and PIN 2 (G) of CNT 808.			
4	Check the counter reading to be 4.3218 ±0.0025 MHz in the test mode 3.			
	EF. Balance Adjustment			
1	See Figure 21	In the test mode 2		 Obtain symmetrical waveform.
2		Turn a disc softly with a finger and adjust VR105 to obtain symmertrical waveform	VR801	
3	The above adjustments must be made very carefully as the misadjustment may cause skipping.			

PLL Adjustment

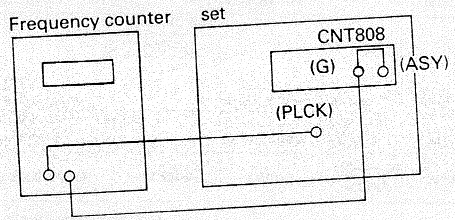


Figure 20

EF. Balance Adjustment

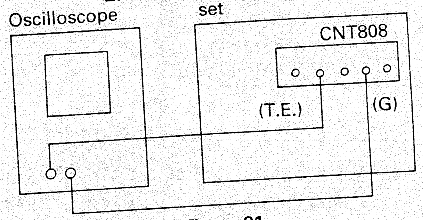
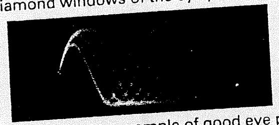


Figure 21

Step	Connect	Setting	Adjust	Remarks
	Focus Offset Adjustment			
1	See Figure 22	In the test mode 3	VR802	Obtain the maximum amplitude and the biggest diamond windows of the eye pattern.  The above is on example of good eye pattern. The diamond windows in the center portion are large and clear.

Focus offset Adjustment

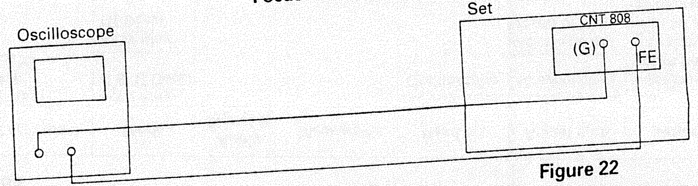


Figure 22

DECK PART

Before Measurements and Adjustment

The following general conditions apply to the electrical measurements and adjustments unless especial stated otherwise.

-Dolby NR switch off.

1. Test tape

• TCC-155	Azimuth (14 kHz, -24 dB)
• TCC-122	Tape speed (3 kHz, -10 dB)
• TCC-130	Playback level (Dolby ref. tape 400 Hz, 0 dB)
• TCC-185C	Playback frequency response
-Reference Tape	
• Normal	TDK AC-224
• CrO_2	TDK AC-513
• Metal	TDK AC-712

2. Instrument required

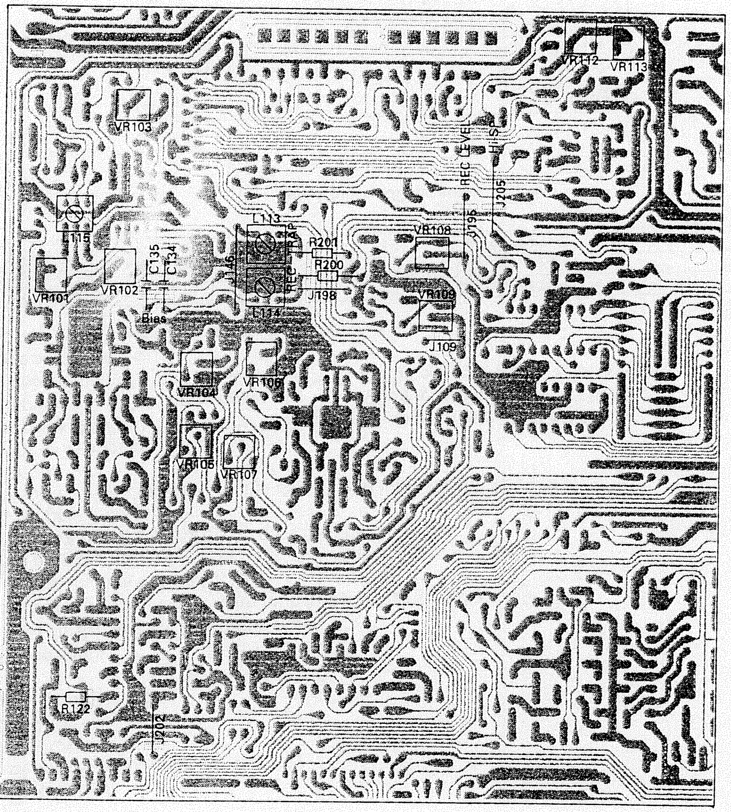
-Audio frequency oscillator

-ACVM or dual channel, mV-meter

-Wow/Flutter meter

-Oscilloscope

Test Points (Main Board)



3. Playback section

Adjustments	Test tape	Mode	Apply Signal to	Measure on	Read on	Adjust with	Adjust to
Head Azimuth	TCC-155 14 kHz (A.BEX)	FWD Play (I & II Deck)		Dolby TP (R122, J202)	AC mV-meter Oscilloscope	Adjusting a left screw of head	Max Lissajous' figure become a straight line with an angle 45 degrees
		REW play (II Deck)				Adjusting a right screw of head	
Playback Speed at normal	TCC-112 3 kHz -10 dB (A.Bex)	Play (I & II Deck)			Wow and Flutter Meter	VR112	3000 Hz±30 Hz
Playback at high-speed	TCC-112 3 kHz -10 dB (A. Bex)					VR113	4500 Hz±45 Hz
Playback Level	TCC-130 400 Hz 0 dB (A. Bex)				AC mV-meter	A Deck VR245 VR105	145 mV (Dolby TP)
						B Deck VR106 VR107	
Playback frequency response	TCC-185C 12.5 kHz, 1 kHz, 60 Hz (A.Bex)				AC mV-meter		See graph Fig. 23 freq. response

4. Recording section

Adjustments	Test tape	Mode	Apply Signal to	Measure on	Read on	Adjust with	Adjust to
Bias OSC Frequency	AC-513 (TDK)	Rec/Pause	400 Hz 400 mV Video	CNT 101	Frequency Counter	L115	105 KHz±400 Hz
Target value Bias		Rec/Pause		J146	AC mV-meter		
	CrO_2 AC-513					VR102, VR101	AC 18
	Normal, AC-224					VR103	AC 10
Recording Level	AC-513 (TDK)	Rec/Pause		J195, J109		VR108, VR109	AC 7mV

Notes:

*a. Prior to any measurement or adjustment, the tape running heads and tape guides should be degaussed and cleaned.

*b. The maximum permissible speed variation is ±1%. Moreever, the wow and flutter can be read. This value should not exceed 0.2%.

*c. When one channel is adjusted, this may slightly affect the adjustment of the other channel. If the adjustment is correct, the frequency response curve will be similar to curve b in Figure 23, with distortion below 3% (-3 dB rec/play).

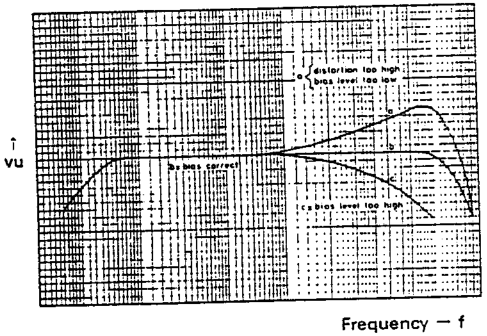
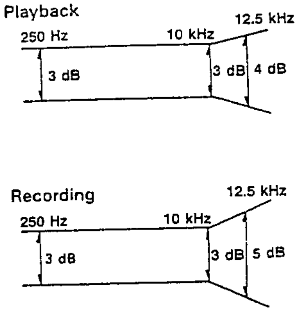


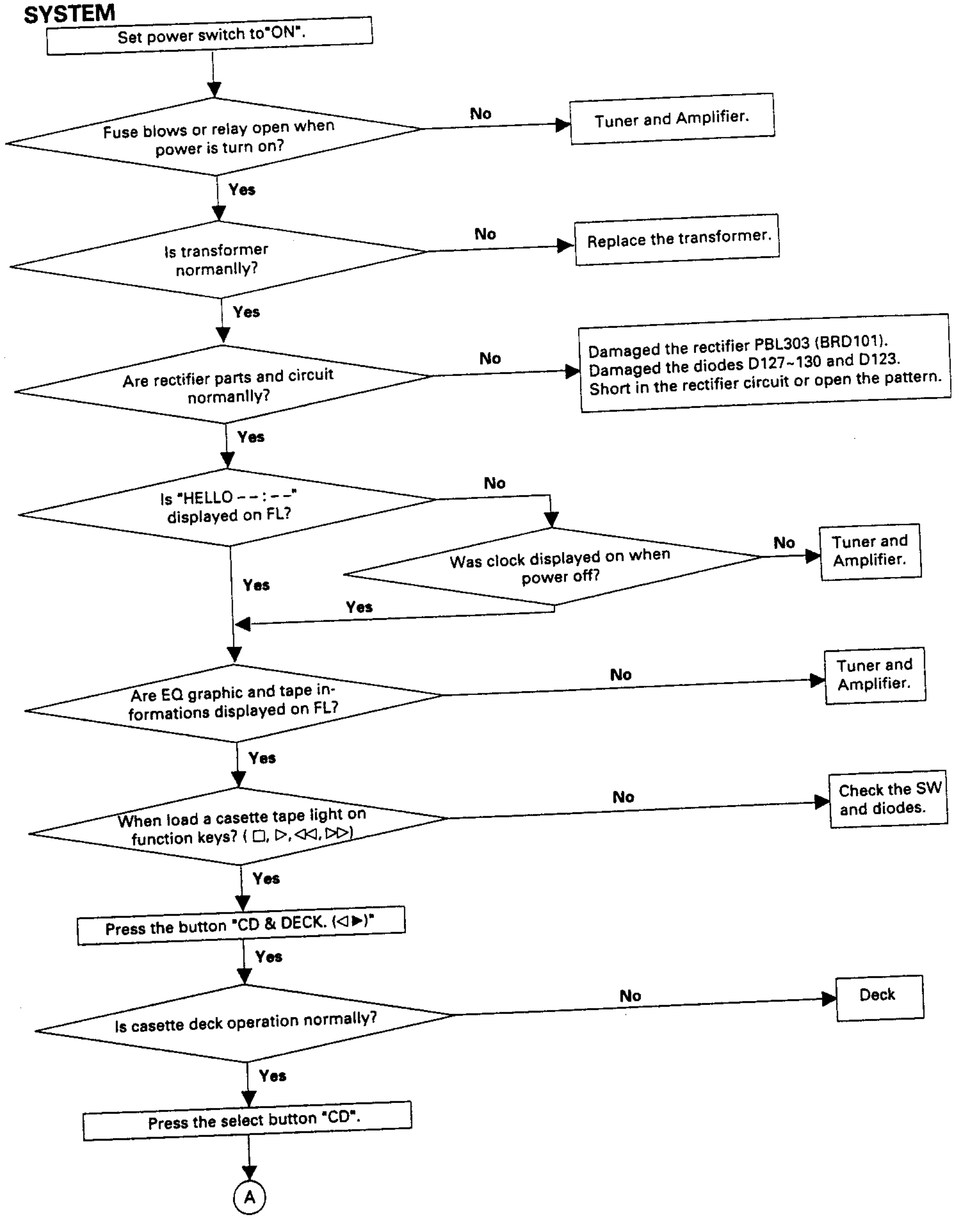
Figure 23

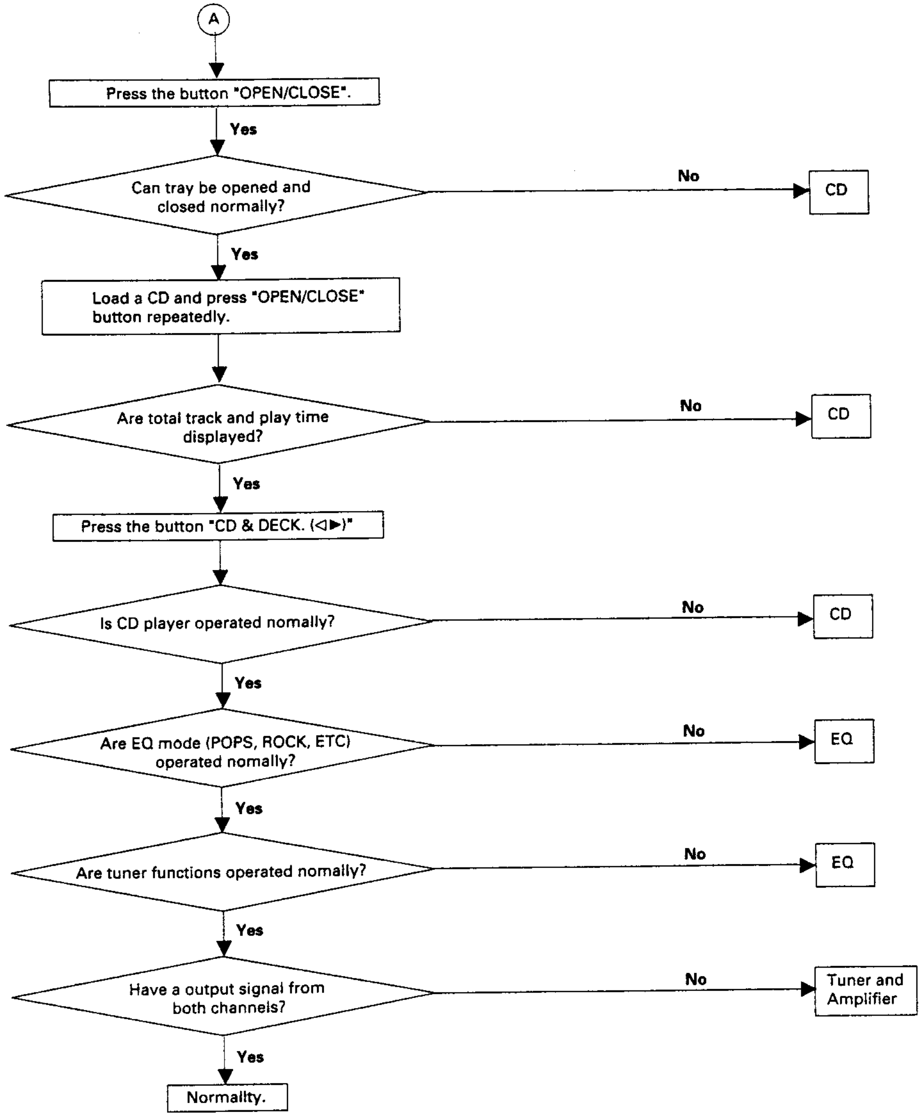

Playback
250 Hz
10 kHz
12.5 kHz
3 dB
3 dB
4 dB
Recording
250 Hz
10 kHz
12.5 kHz
3 dB
3 dB
5 dB

Allowable Plyaback/Recording Frequency Response Zone

TROUBLE SHOOTING

SYSTEM


Set power switch to "ON".
Fuse blows or relay open when power is turn on?
No
Tuner and Amplifier.
Yes
Is transformer normanlly?
No
Replace the transformer.
Yes
Are rectifier parts and circuit normanlly?
No
Damaged the rectifier PBL303 (BRD101).
Damaged the diodes D127~130 and D123.
Short in the rectifier circuit or open the pattern.
Yes
Is "HELLO --:--" displayed on FL?
No
Was clock displayed on when power off?
No
Tuner and Amplifier.
Yes
Yes
Are EQ graphic and tape informations displayed on FL?
No
Tuner and Amplifier.
Yes
When load a casette tape light on function keys? (□, ▷, ◁◁, ▷▷)
No
Check the SW and diodes.
Yes
Press the button "CD & DECK. (◁▶)"
Yes
Is casette deck operation normally?
No
Deck
Yes
Press the select button "CD".
A


A
Press the button "OPEN/CLOSE".
Yes
Can tray be opened and closed normally?
No
CD
Yes
Load a CD and press "OPEN/CLOSE" button repeatedly.
Are total track and play time displayed?
No
CD
Yes
Press the button "CD & DECK. (◁▶)"
Is CD player operated nomally?
No
CD
Yes
Are EQ mode (POPS, ROCK, ETC) operated nomally?
No
EQ
Yes
Are tuner functions operated nomally?
No
EQ
Yes
Have a output signal from both channels?
No
Tuner and Amplifier
Yes
Normailty.

TUNER AND AMPLIFIER

Symptom	Cause and Remedy
Tuner and amplifier inoperative (FL indicator does not light).	● Faulty AC power cord. Replace. ● Defect in the power switch. Replace. ● Broken wire and PCB in the power transformer. Replace the power transformer. ● Blown power. Replace the fuse.
Fuse blows when power is turned on.	● Defective power transformer. Replace. ● Short in the primary or secondary of the transformer circuitry. ● Damaged rectifier and D127 ~130. Replace the defective component. ● Short in the rectifier circuit. Repair the short.
Display of the amplifier lights but no Sound from both channels.	● Defect in power IC101 on the main amp board. Replace the defective component ● L111/L112 are defective Replace the defective Part(s). Refer to schematic diagram for signal Line.
Speaker works normally but headphones inoperative.	● Defective resistor R165, R166. Replace.
FM inoperative.	● Defective front-end. Replace. ● Defective FM switch. Replace the switch. ● Defective transistor Q167, Q162, Q130 or IC114. Replace the defective transistor (s) or IC. ● Defective coil L108 or L109. Replace the coil(s). ● Defective lead-in. Repair or replace the lead in. ● Ceramic filter CF102, CF103 defective. Replace the defective ceramic filter(s).

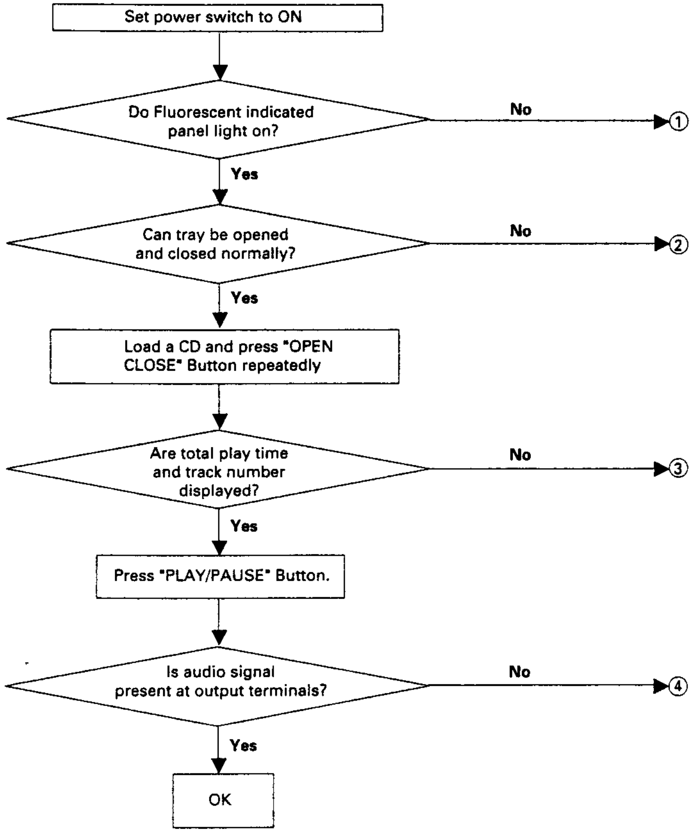
Symptom	Cause and Remedy
FM inoperative.	● Defective controller circuit component (Refer to schematic diagram for signal line) Replace.
Poor multiplex separation.	● Improper adjustment. Replace VR116. (Refer to MPX alignment). ● IC114 defective. Replace. ● Variable resistor VR116 defective. Replace the variable resistor.
STEREO indicator does not light.	● Defective indicator in FL. Replace. ● Defective IC111 or IC701 (CPU). Replace the defective component(s).
FM MUTE has no effect.	● Defective IC111. Replace.
AM or LW inoperative.	● Damaged IC111 of main board. Replace. ● Defective coil L104~L106 of main board. Replace. ● Defective TUNER/BAND switch. Replace. ● Defective varicap diode D132. Replace varicap diode. ● Damaged AM loop antenna. Repair or replace. ● Defective controller circuit component. Replace.
AUTO tune inoperative (up/down) at AM or FM.	● Poor contact in up/down key. Repair or replace. ● Defective IC701. Replace. ● Defective FL. Replace. ● Defective tuner circuit component. Replace. ● In FM only, improper adjustment of FM front-end. Replace.
MAUNAL tune inoperative (up/down) at AM or FM.	● Poor contact in up/down key. Replace. ● Defective IC701. Replace.
MEMORY setting inoperative.	● Defective IC701. Replace.
FL inoperative.	● FL defective. Replace. ● Defective IC701. Replace or short the pins of capacitor C703 for reset IC701. ● Faulty AC power Line. Repaire.

Symptom	Cause and Remedy
Noise volume control.	● Defective IC601 or IC603. Replace the component(s). ● Defective capacitor C618 or C619. Replace the defective capacitor(s).
Remote control unit inoperative.	● Weak Battery. Replace. ● Defective SEN701. Replace. ● Defective IC701. Replace.

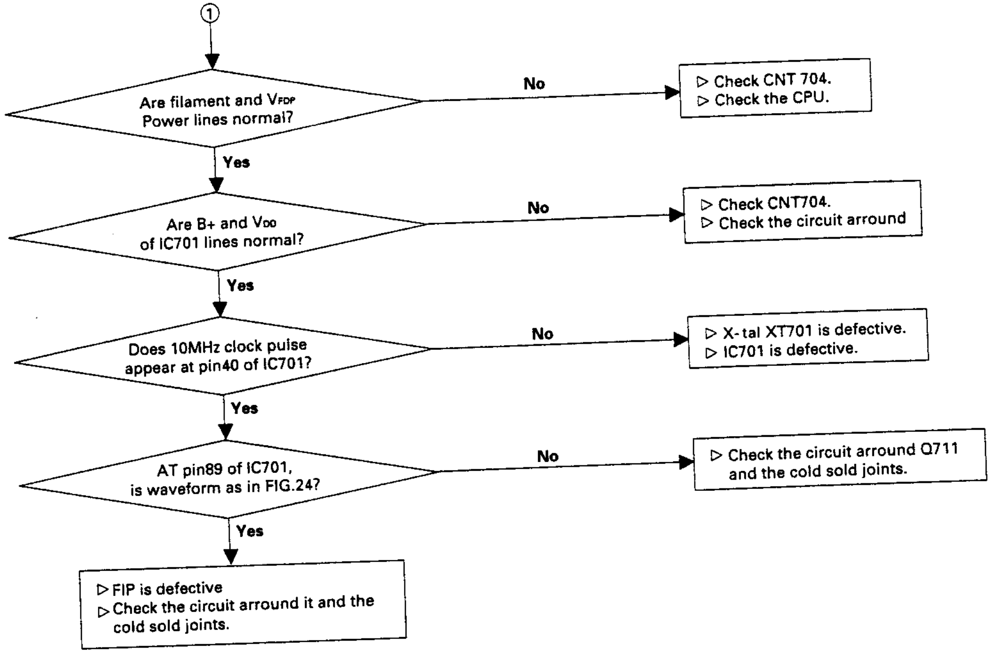
EQUALIZER

Symptom	Cause and Remedy
EQ inoperative.	● FL defective. Replace. ● Defective IC701 (CPU). Replace or short the pins of back up capacitor C703.
Do not operate with EQ mode selector switch.	● Defective switches SW28~33. Replace the switches. ● Defective IC701. Replace or Reset the CPU.

COMPACT DISC


Set power switch to ON
Do Fluorescent indicated panel light on?
No
①
Yes
Can tray be opened and closed normally?
No
②
Yes
Load a CD and press "OPEN CLOSE" Button repeatedly
Are total play time and track number displayed?
No
③
Yes
Press "PLAY/PAUSE" Button.
Is audio signal present at output terminals?
No
④
Yes
OK

[Repair item 1] At power on, flouscent indicated panel don't light on.


①
Are filament and VFDP Power lines normal?
No
▷ Check CNT 704.
▷ Check the CPU.
Yes
Are B+ and VDD of IC701 lines normal?
No
▷ Check CNT704.
▷ Check the circuit arround
Yes
Does 10MHz clock pulse appear at pin40 of IC701?
No
▷ X-tal XT701 is defective.
▷ IC701 is defective.
Yes
AT pin89 of IC701, is waveform as in FIG.24?
No
▷ Check the circuit arround Q711 and the cold sold joints.
Yes
▷ FIP is defective
▷ Check the circuit arround it and the cold sold joints.

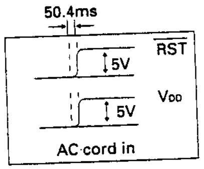
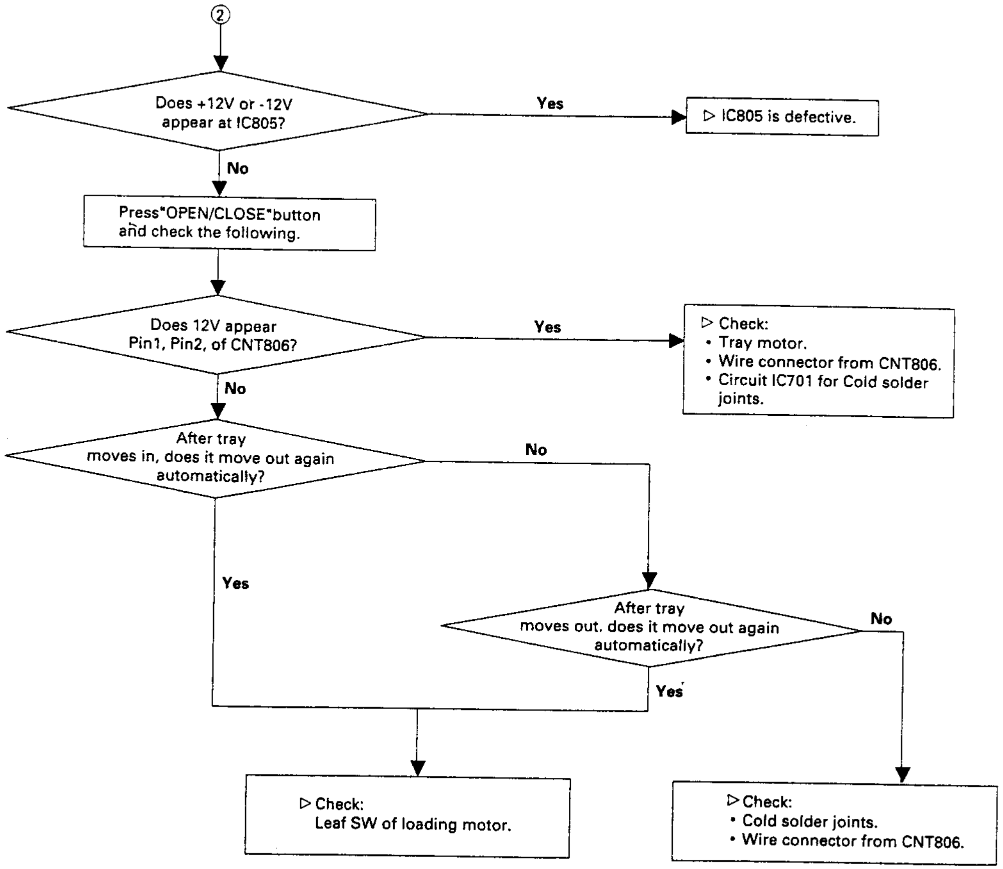
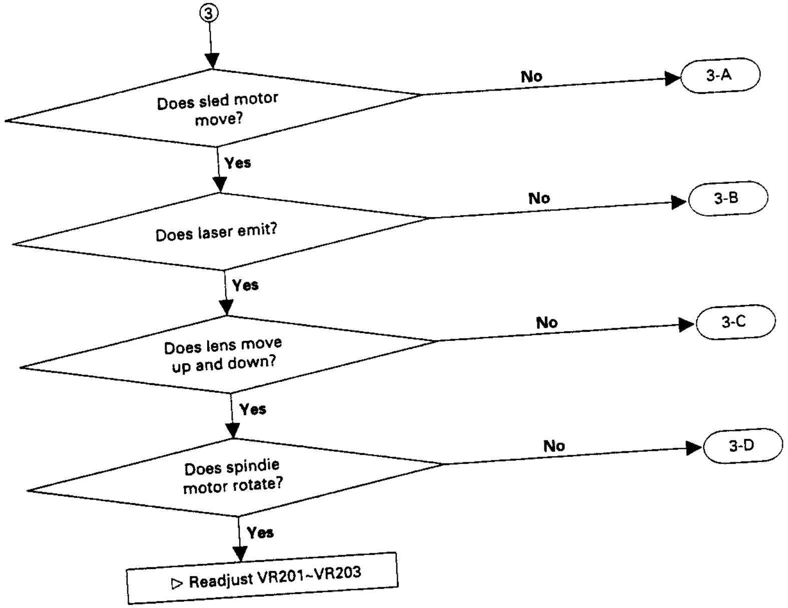

50.4ms
RST
5V
VDD
5V
AC cord in

Figure 24

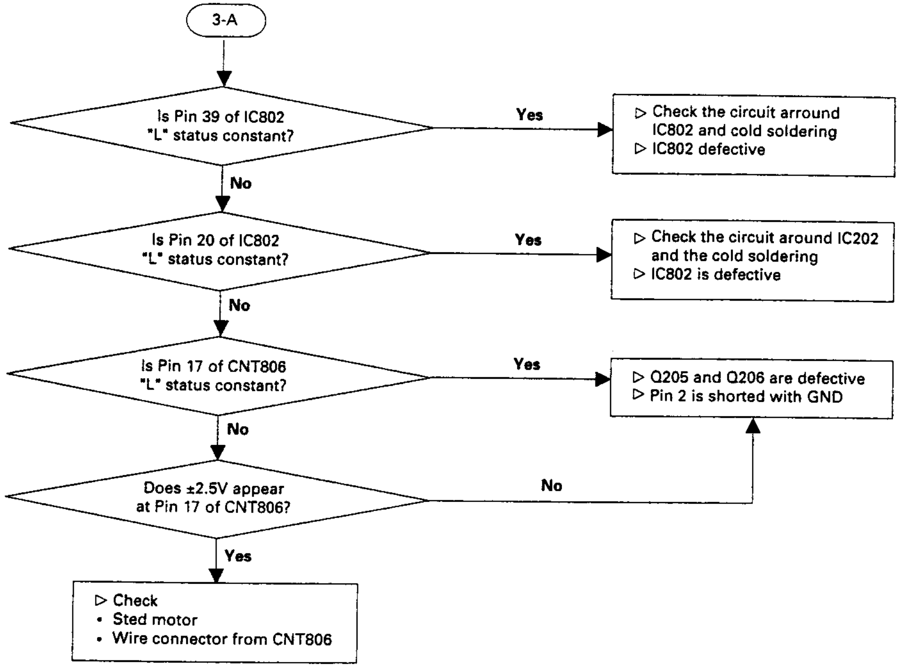
[Repair item 2] Tray cannot be opened and closed by pressing "OPEN/CLOSE" button.


②
Does +12V or -12V appear at IC805?
Yes
▷ IC805 is defective.
No
Press"OPEN/CLOSE"button and check the following.
Does 12V appear Pin1, Pin2, of CNT806?
Yes
▷ Check:
• Tray motor.
• Wire connector from CNT806.
• Circuit IC701 for Cold solder joints.
No
After tray moves in, does it move out again automatically?
No
Yes
After tray moves out. does it move out again automatically?
No
Yes
▷ Check:
Leaf SW of loading motor.
▷ Check:
• Cold solder joints.
• Wire connector from CNT806.

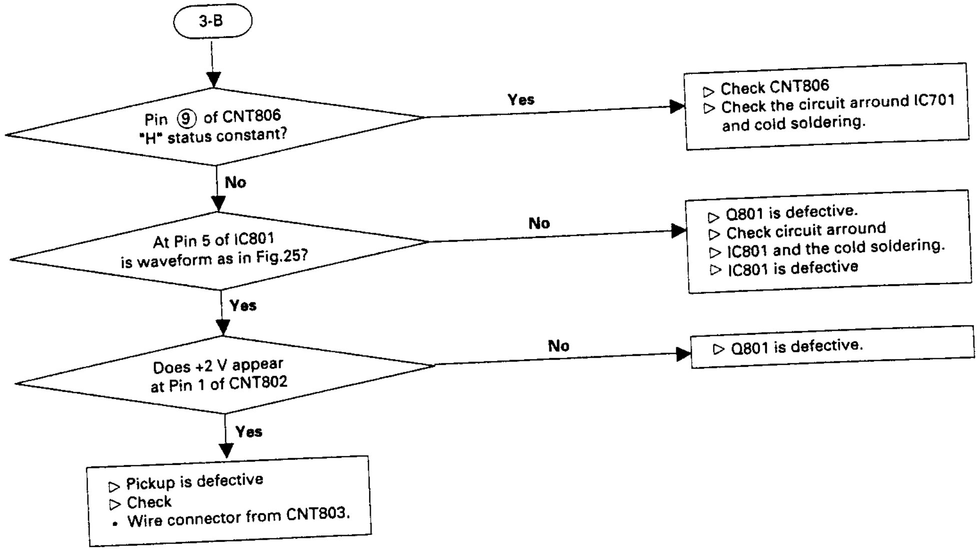
[Repair item 3] "8 " is displayed instead of total play time and track number.


③
Does sled motor move?
No
3-A
Yes
Does laser emit?
No
3-B
Yes
Does lens move up and down?
No
3-C
Yes
Does spindie motor rotate?
No
3-D
Yes
▷ Readjust VR201~VR203

[Repair item 3-A] Sled motor does not move.


3-A
Is Pin 39 of IC802 "L" status constant?
Yes
▷ Check the circuit arround IC802 and cold soldering
▷ IC802 defective
No
Is Pin 20 of IC802 "L" status constant?
Yes
▷ Check the circuit around IC202 and the cold soldering
▷ IC802 is defective
No
Is Pin 17 of CNT806 "L" status constant?
Yes
▷ Q205 and Q206 are defective
▷ Pin 2 is shorted with GND
No
Does ±2.5V appear at Pin 17 of CNT806?
No
Yes
▷ Check
• Sted motor
• Wire connector from CNT806

[Repair item 3-B] Laser does not emit.


3-B
Pin ⑨ of CNT806 "H" status constant?
Yes
▷ Check CNT806
▷ Check the circuit arround IC701 and cold soldering.
No
At Pin 5 of IC801 is waveform as in Fig.25?
No
▷ Q801 is defective.
▷ Check circuit arround
▷ IC801 and the cold soldering.
▷ IC801 is defective
Yes
Does +2 V appear at Pin 1 of CNT802
No
▷ Q801 is defective.
Yes
▷ Pickup is defective
▷ Check
• Wire connector from CNT803.

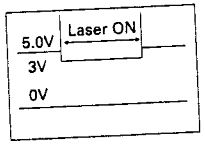
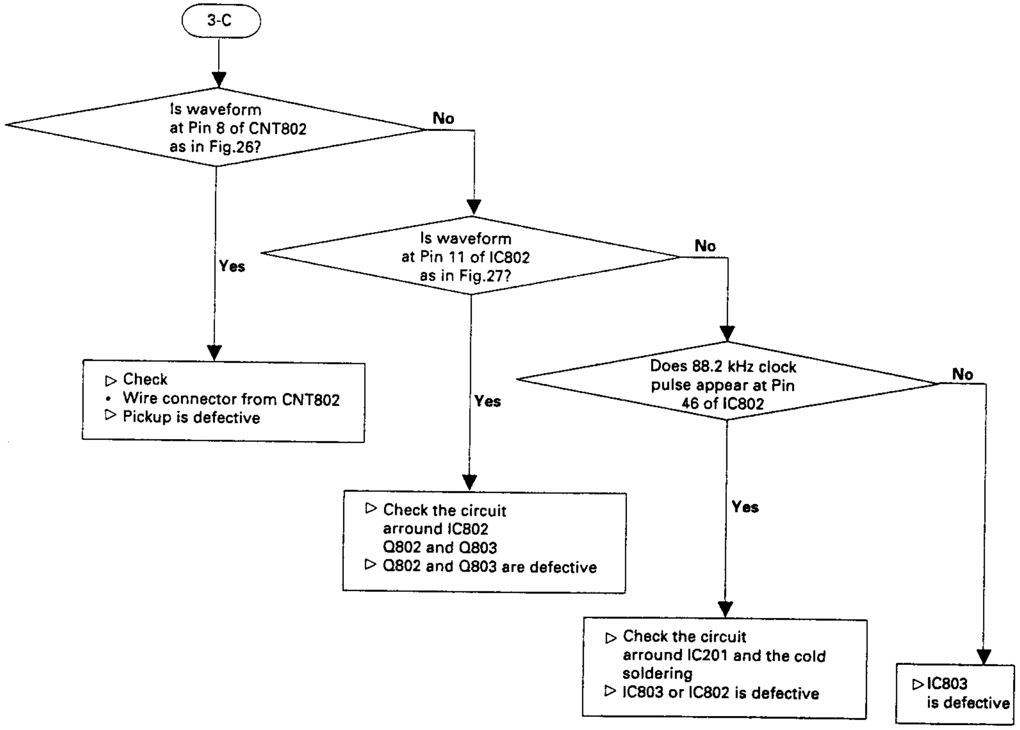

5.0V
3V
0V
Laser ON

Figure 25

[Repair item 3-C] Object lens of pickup unit does not move up and down.


3-C
Is waveform at Pin 8 of CNT802 as in Fig.26?
No
Yes
▷ Check
• Wire connector from CNT802
▷ Pickup is defective
Is waveform at Pin 11 of IC802 as in Fig.27?
No
Yes
▷ Check the circuit arround IC802 Q802 and Q803
▷ Q802 and Q803 are defective
Does 88.2 kHz clock pulse appear at Pin 46 of IC802
No
Yes
▷ Check the circuit arround IC201 and the cold soldering
▷ IC803 or IC802 is defective
▷ IC803 is defective

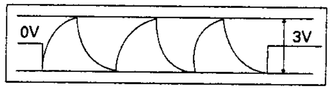


Figure 26

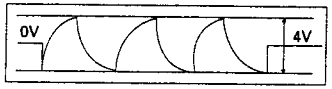
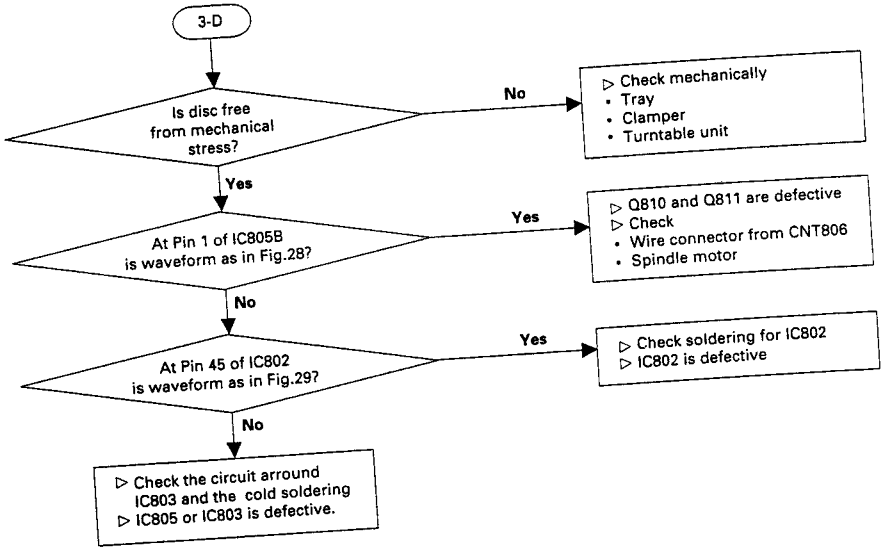


Figure 27

[Repair item 3-D] Spindle motor does not rotate.


3-D
Is disc free from mechanical stress?
No
▷ Check mechanically
• Tray
• Clamper
• Turntable unit
Yes
At Pin 1 of IC805B is waveform as in Fig.28?
Yes
▷ Q810 and Q811 are defective
▷ Check
• Wire connector from CNT806
• Spindle motor
No
At Pin 45 of IC802 is waveform as in Fig.29?
Yes
▷ Check soldering for IC802
▷ IC802 is defective
No
▷ Check the circuit arround IC803 and the cold soldering
▷ IC805 or IC803 is defective.

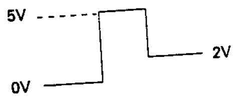


Figure 28

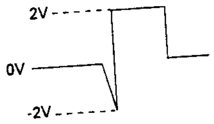
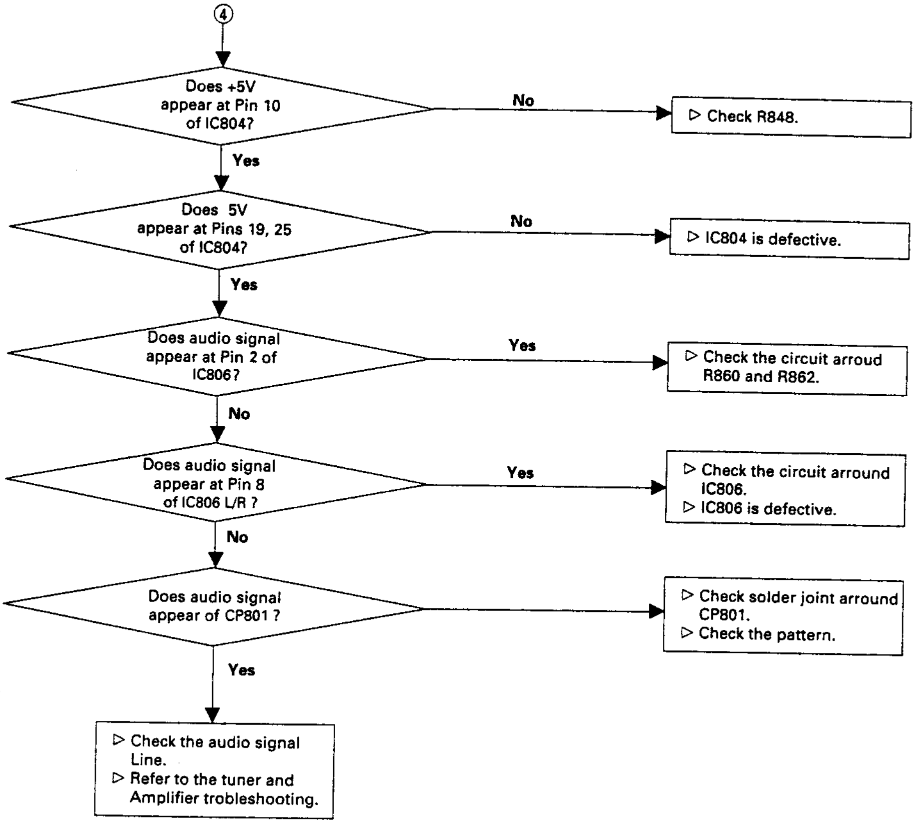
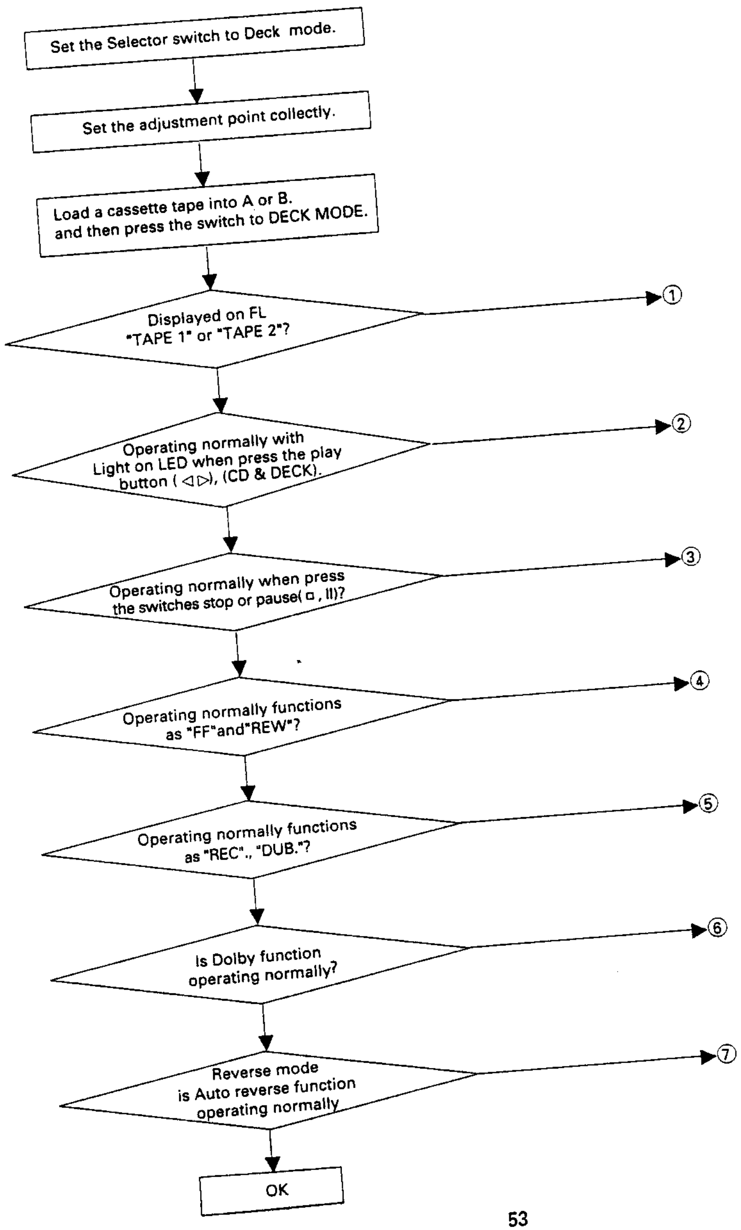


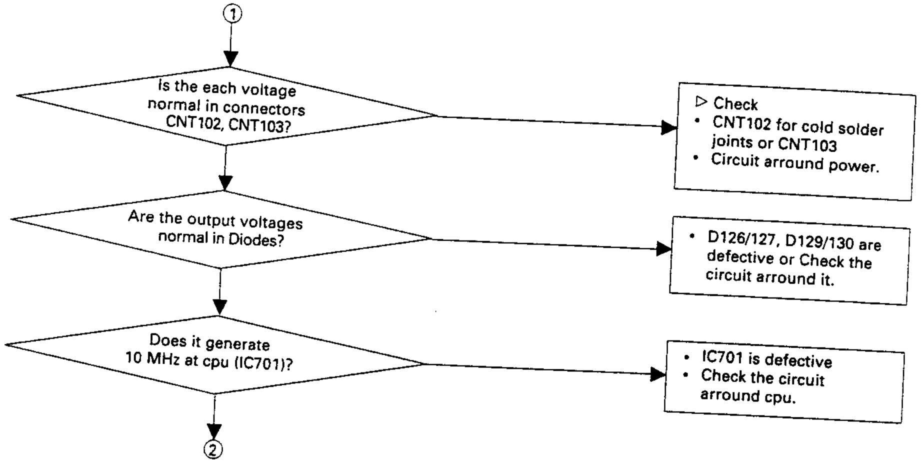
Figure 29

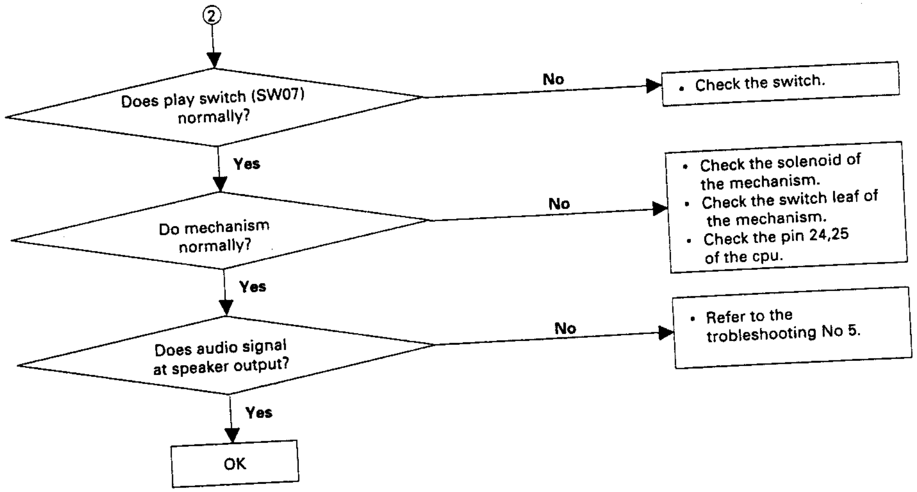
[Repair item 4] No sound singnal.

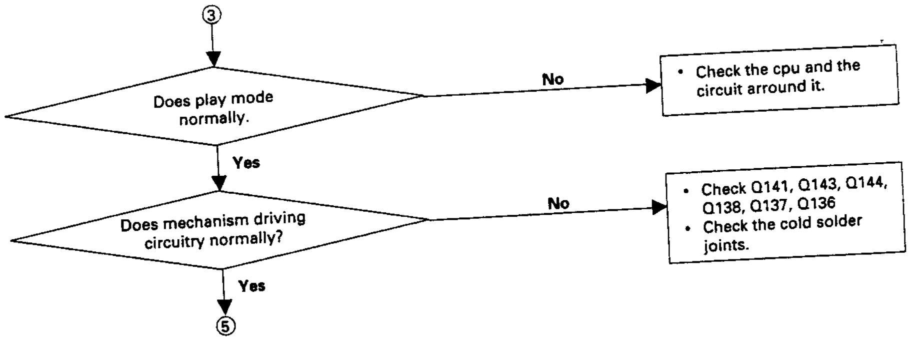

④
Does +5V appear at Pin 10 of IC804?
No
▷ Check R848.
Yes
Does 5V appear at Pins 19, 25 of IC804?
No
▷ IC804 is defective.
Yes
Does audio signal appear at Pin 2 of IC806?
Yes
▷ Check the circuit arroud R860 and R862.
No
Does audio signal appear at Pin 8 of IC806 L/R ?
Yes
▷ Check the circuit arround IC806.
▷ IC806 is defective.
No
Does audio signal appear of CP801 ?
▷ Check solder joint arround CP801.
▷ Check the pattern.
Yes
▷ Check the audio signal Line.
▷ Refer to the tuner and Amplifier trobleshooting.

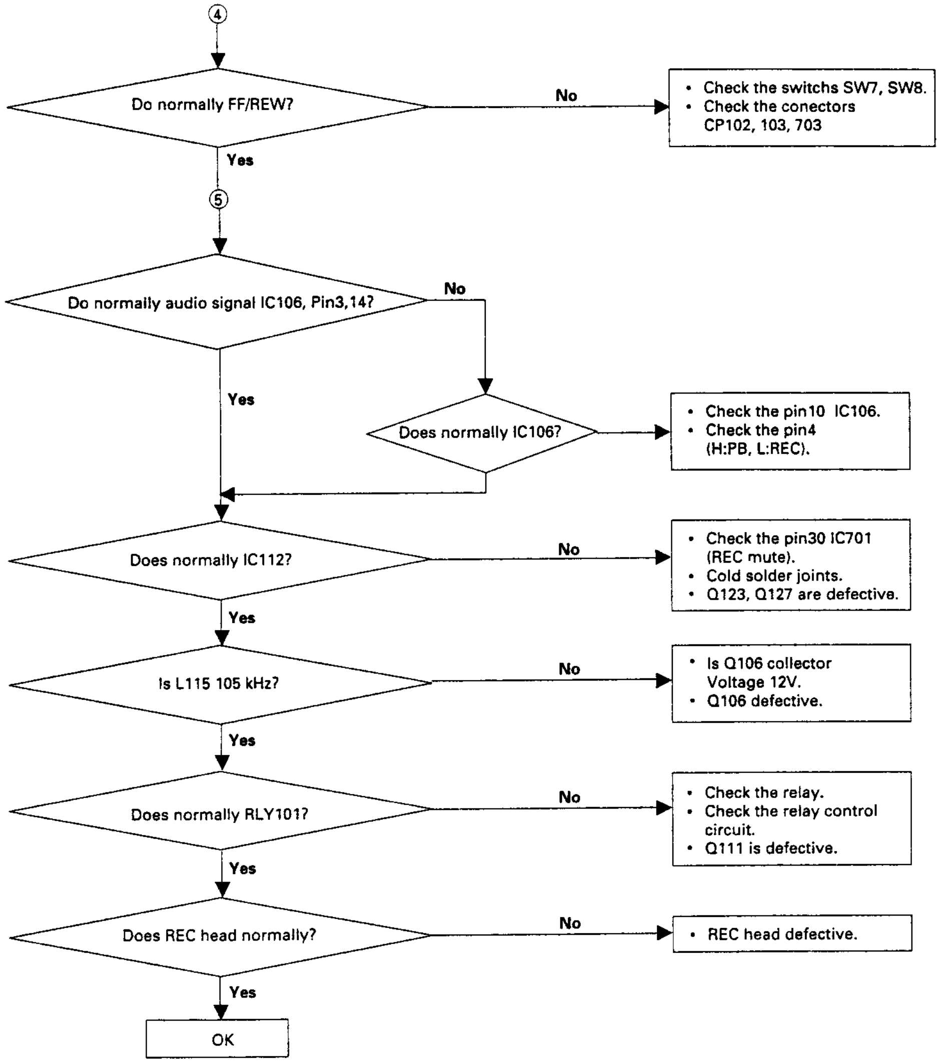
DECK

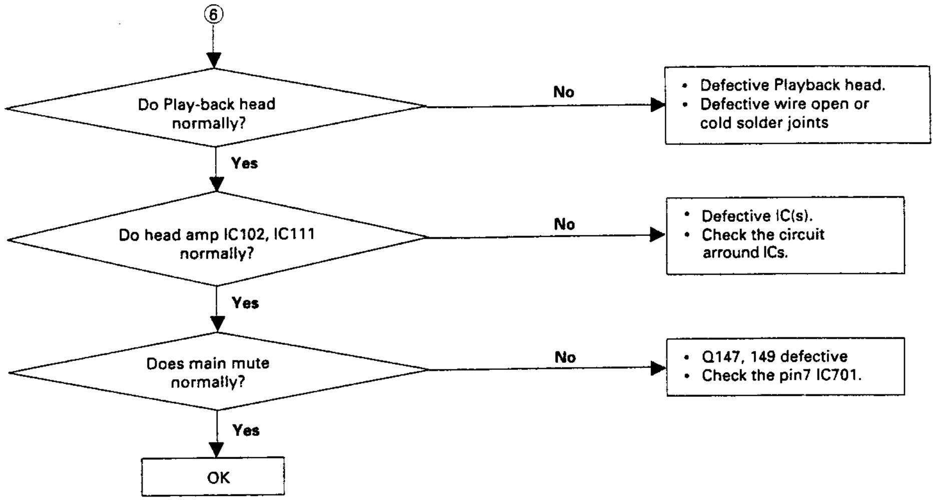

Set the Selector switch to Deck mode.
Set the adjustment point collectly.
Load a cassette tape into A or B. and then press the switch to DECK MODE.
Displayed on FL "TAPE 1" or "TAPE 2"?
①
Operating normally with Light on LED when press the play button (◁▷), (CD & DECK).
②
Operating normally when press the switches stop or pause(□ , II)?
③
Operating normally functions as "FF"and"REW"?
④
Operating normally functions as "REC"., "DUB."?
⑤
Is Dolby function operating normally?
⑥
Reverse mode is Auto reverse function operating normally
⑦
OK


①
Is the each voltage normal in connectors CNT102, CNT103?
▷ Check
• CNT102 for cold solder joints or CNT103
• Circuit arround power.
Are the output voltages normal in Diodes?
• D126/127, D129/130 are defective or Check the circuit arround it.
Does it generate 10 MHz at cpu (IC701)?
• IC701 is defective
• Check the circuit arround cpu.
②


②
Does play switch (SW07) normally?
No
• Check the switch.
Yes
Do mechanism normally?
No
• Check the solenoid of the mechanism.
• Check the switch leaf of the mechanism.
• Check the pin 24,25 of the cpu.
Yes
Does audio signal at speaker output?
No
• Refer to the trobleshooting No 5.
Yes
OK


③
Does play mode normally.
No
• Check the cpu and the circuit arround it.
Yes
Does mechanism driving circuitry normally?
No
• Check Q141, Q143, Q144, Q138, Q137, Q136
• Check the cold solder joints.
Yes
⑤


④
Do normally FF/REW?
No
• Check the switchs SW7, SW8.
• Check the conectors CP102, 103, 703
Yes
⑤
Do normally audio signal IC106, Pin3,14?
No
Does normally IC106?
• Check the pin10 IC106.
• Check the pin4 (H:PB, L:REC).
Yes
Does normally IC112?
No
• Check the pin30 IC701 (REC mute).
• Cold solder joints.
• Q123, Q127 are defective.
Yes
Is L115 105 kHz?
No
• Is Q106 collector Voltage 12V.
• Q106 defective.
Yes
Does normally RLY101?
No
• Check the relay.
• Check the relay control circuit.
• Q111 is defective.
Yes
Does REC head normally?
No
• REC head defective.
Yes
OK


⑥
Do Play-back head normally?
No
• Defective Playback head.
• Defective wire open or cold solder joints
Yes
Do head amp IC102, IC111 normally?
No
• Defective IC(s).
• Check the circuit arround ICs.
Yes
Does main mute normally?
No
• Q147, 149 defective
• Check the pin7 IC701.
Yes
OK

MECHANICAL PARTS LIST (P-333R)

Ref. No.	Part No.	Description	Q'ty	Version
PACKAGE				
	049605254201	Box Carton	1	D,E,G,PT
	049605254202	Box Carton	1	KS
	049605254203	Box Carton	1	CAD
	049605254205	Box Carton	1	PT
	9715001310	Film, Soft PE	1	
	9721005510	Cushion, Poly	1	
ACCESSORIES				
	5418000411	Commander, INKEL	1	KS
	5418000412	Commander, SHERWOOD	1	D,PT
	5418000413	Commander, IMPERIAL	1	CAD
	5418000414	Commander, AKAWA	1	ZONDA
	434800110	Antenna, Cord	1	D,PT
	4348000810	Antenna, Wire, FM	1	KS, CAD
	9007017590	Manual, operating	1	D
	9007017592	Manual, operating	1	CAD
	9007017594	Manual, operating	1	KS
	9007017595	Manual, operating	1	PT
	2608207360	Antenna, AM, Loop, Stand Type	1	
	2608207361	Antenna, AM	1	KS, CAD
CABINET AND CHASSIS				
Assembly Panel, Front				
1	048501031611	Panel, Front	1	KS
	048501031612	Panel, Front	1	E,G
	048501031613	Panel, Front	1	CAD
	048501031614	Panel, Front	1	ZONDA
	048501031613	Panel, Front	1	CAD
	048501031621	Panel, Front	1	D
6	8553018410	Window, Display	1	
9	6555608810	Spring, Door L	1	
10	6555608910	Spring, Door R	1	
11	6715023510	Foot, Rubber	1	
21	6525300210	Bracket, Fastener	2	
Assembly, Door, Deck L				
2	048562004611	Door, Deck L	1	KS
	048562004612	Door, Deck L	1	
	048562004613	Door, Deck L	1	ZONDA
3	048553018511	Window, Door L	1	
Assembly, Door, Deck R				
4	048562004711	Door, Deck R	1	KS
	048562004712	Door, Deck R	1	
	048562004713	Door, Deck R	1	ZONDA
5	048553018611	Window, Door R	1	
Miscellaneous				
12	8543056110	Button, Power	1	
13	8543056310	Button, 4 Key	1	
14	8545120810	Button, Light	1	
15	6715024910	Sponge, Ring	2	
16	8555047210	Window, Sensor	1	
17	8543056210	Button, 3 Key	4	
18	8542006210	Button, Function	1	
19	8545120710	Button, Open	1	
End of Assembly Panel, Front				
Assembly, Volume, Main				
7	048543058111	Knob, Volume	1	
8	8555042320	Indicator	1	
		End of Assembly, Volume, Main		
Assembly, Bracket R				
25	6123624210	Bracket, Damper L	1	
26	6715024610	Guide, Locker L	1	
27	6555609310	Spring, Locker L	1	
28	6303002010	Locker, Eject L	1	
S4	8109330081	Screw #3BTC 3x8Y	1	
S5	8009120051	Screw BM 2x5Y	1	
End of Assembly, Bracket R				
Assembly, Bracket L				
29	6308001630	Damper	2	
30	6123624310	Bracket, Damper R	1	
31	6715024620	Guide, Locker R	1	
32	6555609320	Spring, Locker R	1	
33	6303002020	Locker, Eject R	1	
S4	8109330081	Screw #3BTC 3x8Y	1	
S5	8009120051	Screw BM 2x5Y	1	
End of Assembly, Bracket L				
20	048535041611	Plate, FL	1	
22	6042002310	Guide, FL	1	
23	6045010110	Guide, Sensor	1	
24	6043009810	Holder, LED	1	
34	5078013910	Mechanism, Deck	1	
35	6122636610	Bracket, Front	1	
36	6505136210	Bracket, PCB	1	
37	4805002310	Washer, Plate	2	
38	6121612910	Chassis, Main	1	
39	6122636510	Frame, CDP	2	
40	4438005520	Jack, Phone	2	
41	7505206220	Heatsink, Regulator TR	1	
42	4408106410	Terminal, Speaker	1	
43	7503016210	Heatsink, Power	1	
44	4408107110	Terminal, Antenna, Push 4P	1	KS, CAD
	4408108210	Terminal, Antenna	1	D,PT
45	6505133710	Bracket, Jack	1	
46	4438107810	Jack, RCA 2P	1	
47	048563006611	Door, Tray	1	KS
	048563006612	Door, Tray	1	
	048563006613	Door, Tray	1	ZONDA
48	5708000430	Mechanism, CDP	1	
49	6055003620	Support, P. C. Board	4	
50	6165147710	Shield Fence	1	
51	7505206110	Heatsink, Regulator TR	1	
52	046102039211	Chassis, Back A	1	KS
	046102039212	Chassis, Back A	1	CAD
	046102039213	Chassis, Back A	1	B,D,E,G
53	046102040011	Chassis, Back B	1	KS
	046102040021	Chassis, Back B	1	A
	046102040022	Chassis, Back B	1	ZONDA
	046102040031	Chassis, Back B	1	PT
	046102040041	Chassis, Back B	1	C
	046102040051	Chassis, Back B	1	D
	046102040061	Chassis, Back B	1	E
	046102040071	Chassis, Back B	1	F
	046102040081	Chassis, Back B	1	G
	046102040083	Chassis, Back B	1	CAD
54	6518002310	⚠ Stopper, Cord	1	A,B,KS

Ref. No.	Part No.	Description	Q'ty	Version
	6518002320	Stopper, Cord	1	C,D,E,F,G
55	4308007310	⚠Cord, AC Power	1	KS
	4308001410	⚠Cord, AC Power	1	A
	4308000430	⚠Cord, AC Power	1	B,C,D,F,G
	4308007610	⚠Cord, AC Power	1	E
56	046122028511	Cover, Top	1	
57	8545123010	Knob, Mic	2	
58	6165146110	Shield Fence, Volume	2	D Only
59	6505133610	Bracket, Volume Tone	1	D Only
60	4438113410	Jack, RCA 1P	1	KS
61	6165148910	Shield Fence	1	
MISCELLANEOUS				
	048535038521	Badge, Inkel	1	KS
	048535042011	Badge, Sherwood	1	
	2828009891	⚠Power Transformer 120V 60Hz	1	A
	2828009701	⚠Power Transformer 110/220V 50/60Hz	1	B
	2828009681	⚠Power Transformer 230V 50Hz	1	D
	2828009881	⚠Power Transformer 240V 50Hz	1	E
	2828009671	⚠Power Transformer 220V 50Hz	1	G
	2828009691	⚠Power Transformer 220V 60Hz	1	KS
SW1	4658003710	Switch, Tact	37	
VR1	3208067910	Volume, Motor	1	
VR2	3208044410	Volume, Rear	1	
VR3	3208052210	Volume, Mic/Echo	2	OPTION
PCB1	4002030400C	P.C.Board, Front	1	
PCB2	4002030410C	P.C.Board, CD	1	
PCB3	4002030420C	P.C.Board, Volume	1	
PCB4	4002030430C	P.C.Board, Power	1	
PCB9	4002030440C	P.C.Board, Selector	1	
PCB5	4002030300D	P.C.Board, Main	1	
PCB6	4002030310D	P.C.Board, Input	1	
PCB7	4002030320D	P.C.Board, Trans	1	
PCB8	4002030330D	P.C.Board, Regulator	1	
S1	8109230083	Screw #2BTC 3x8B	35	
S2	9129230083	Screw #2FTC 3x8B	2	
S3	8119130103	Screw #1PT 3x10B	28	
S6	8159440081	Screw WSAM 4x8Y	4	
S7	8109230141	Screw #2BTC 3x14Y	2	
S8	8099130161	Screw HEX MSPW 3x16Y	3	

NOTES:

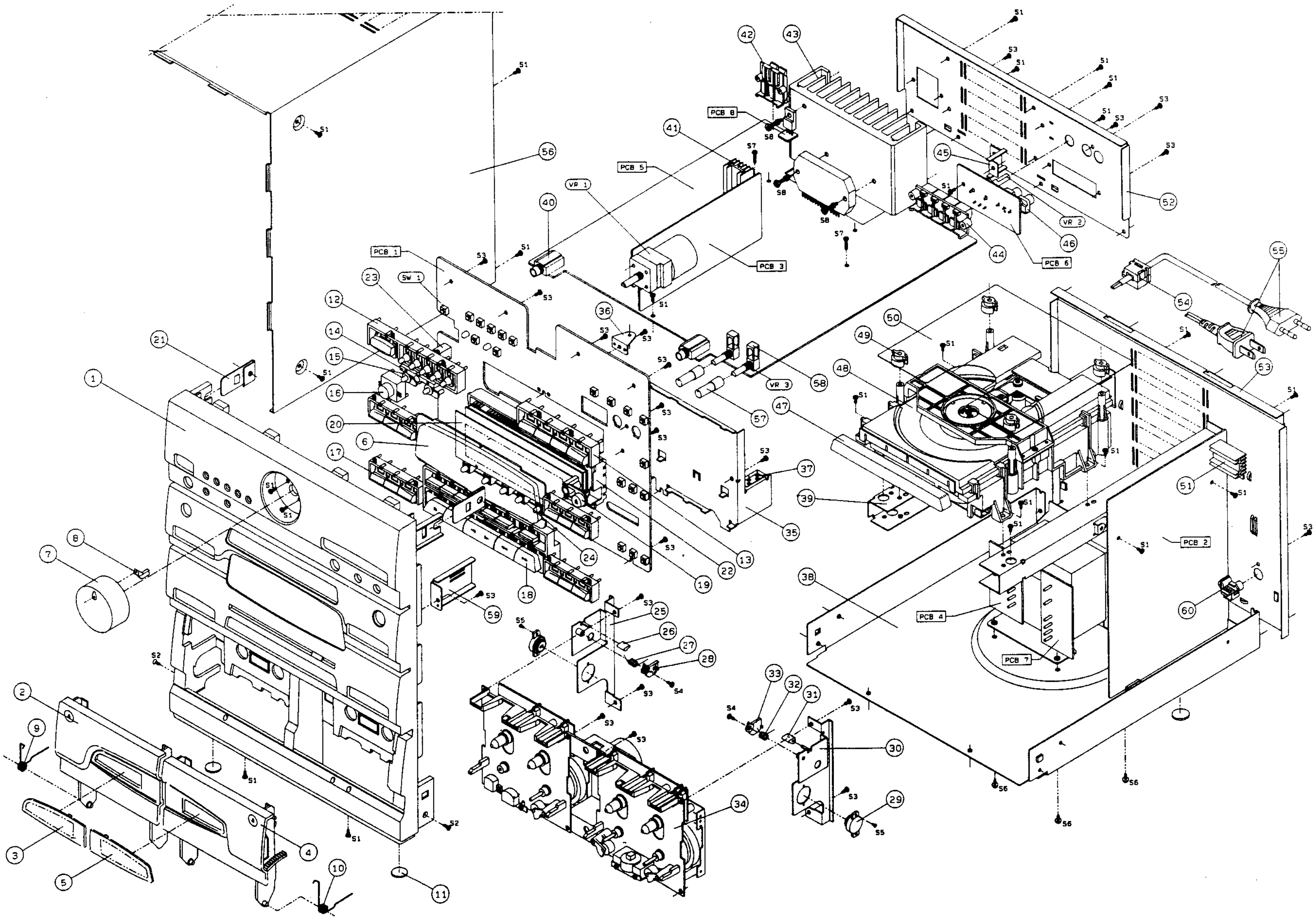
A: 120 V, 60 Hz American/Canadian version
B: 120 /220 V, 50/60 HZ Multi-voltage version (switchable)
D: 230 V, 50 Hz German/General Europe version
E: 240 V, 50 Hz UK/Austalian version
C, F and G: 220 V, 50 Hz area version
KS: Krean version

PRODUCT SAFETY NOTICE

Each precaution in this manual should be follower during servicing. Components identifide with the IEC symbol ⚠ in the parts lost and the safety can be special significance. When repacing a component identified with ⚠ , use only the replacement parts designated, or parts with the snme ratings of resistandce, wattang or voltang that are designated in the parts list in ths manual. Leakang-current or resistance measurements must be made to determine that exposed parts are acceptably insulated fron the supply circuit before returning the product to the customer.

EXPLODED VIEW (Cabinet & Chassis)

Model No: P-333R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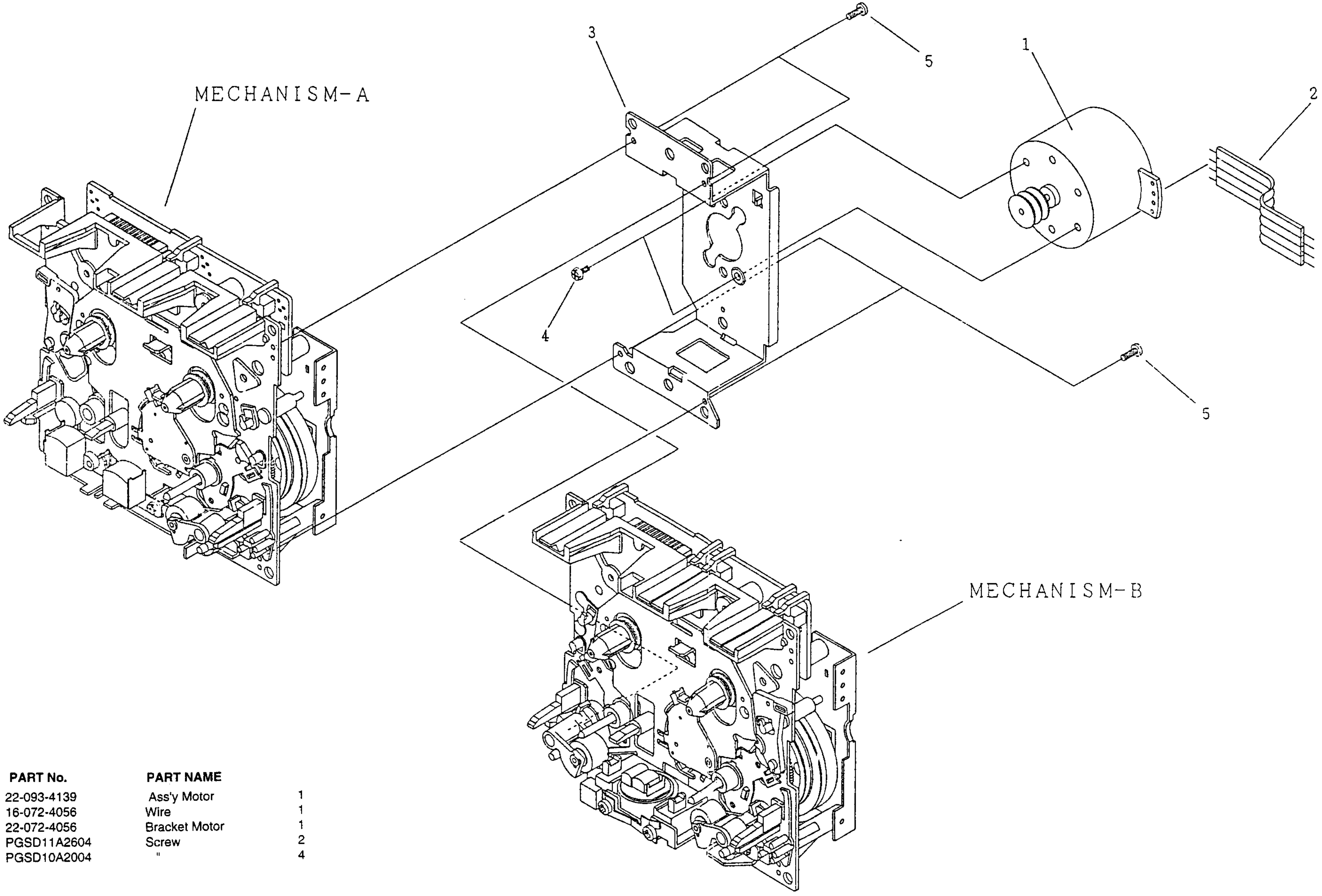
PCB 1
PCB 2
PCB 3
PCB 4
PCB 5
PCB 6
PCB 7
PCB 8
SW 1
VR 1
VR 2
VR 3
S1
S2
S3
S4
S5
S6
S7
S8

EXPLODED VIEW (Mechanism) I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MECHANISM-A
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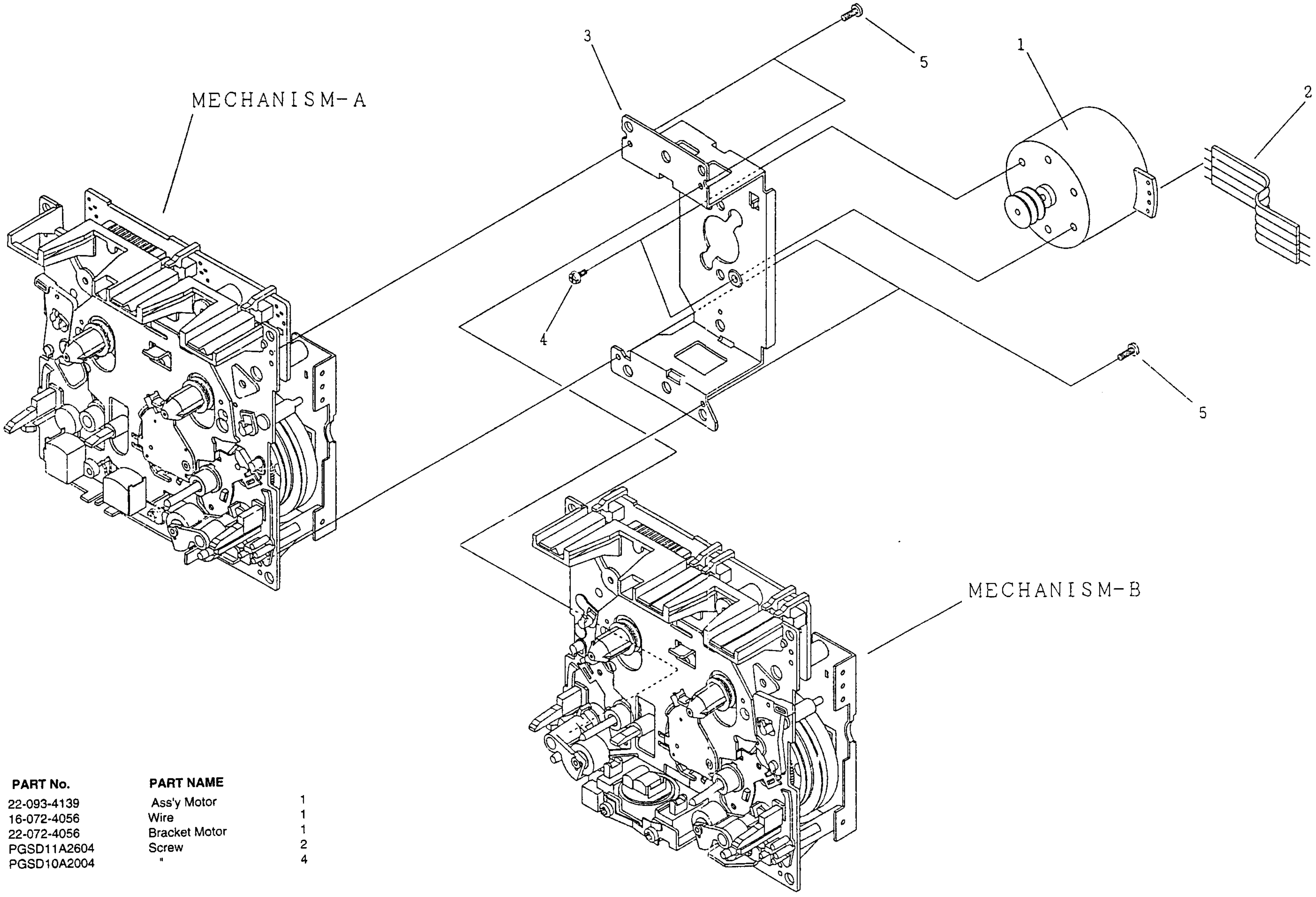
MECHANISM-B

No.	PART No.	PART NAME	
1.	22-093-4139	Ass'y Motor	1
2.	16-072-4056	Wire	1
3.	22-072-4056	Bracket Motor	1
4.	PGSD11A2604	Screw	2
5.	PGSD10A2004	"	4

EXPLODED VIEW (Mechanism) I

Model No: P-333R


MECHANISM-A
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MECHANISM-B

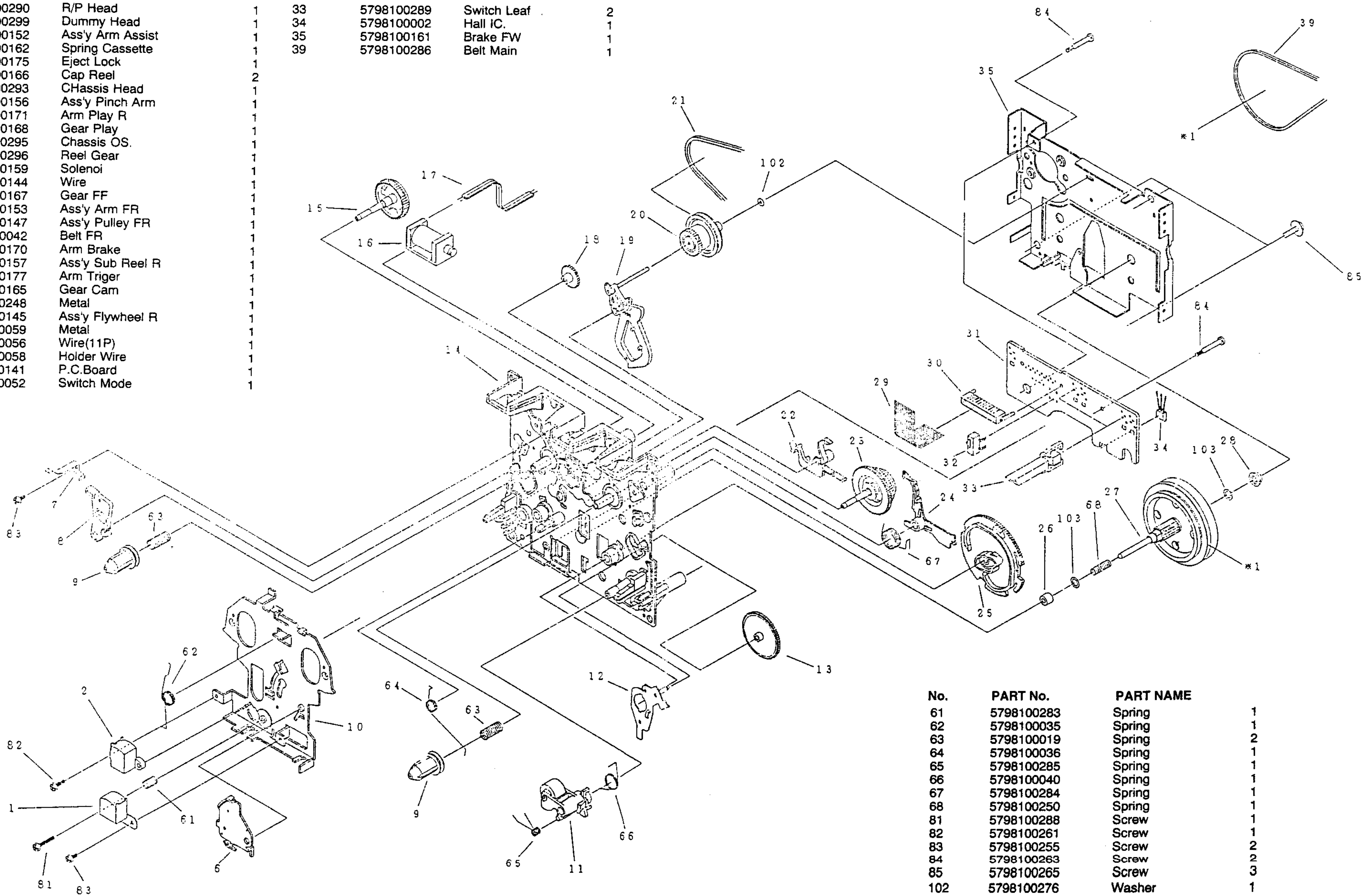
No.	PART No.	PART NAME	
1.	22-093-4139	Ass'y Motor	1
2.	16-072-4056	Wire	1
3.	22-072-4056	Bracket Motor	1
4.	PGSD11A2604	Screw	2
5.	PGSD10A2004	"	4

EXPLODED VIEW (Mechanism) II

Model No: P-333R

No.	PART No.	PART NAME	
1	5798100290	R/P Head	1
2	5798100299	Dummy Head	1
6	5798100152	Ass'y Arm Assist	1
7	5798100162	Spring Cassette	1
8	5798100175	Eject Lock	1
9	5798100166	Cap Reel	2
10	5798100293	CHassis Head	1
11	5798100156	Ass'y Pinch Arm	1
12	5798100171	Arm Play R	1
13	5798100168	Gear Play	1
14	5798100295	Chassis OS.	1
15	5798100296	Reel Gear	1
16	5798100159	Solenoi	1
17	5798100144	Wire	1
18	5798100167	Gear FF	1
19	5798100153	Ass'y Arm FR	1
20	5798100147	Ass'y Pulley FR	1
21	5798100042	Belt FR	1
22	5798100170	Arm Brake	1
23	5798100157	Ass'y Sub Reel R	1
24	5798100177	Arm Triger	1
25	5798100165	Gear Cam	1
26	5798100248	Metal	1
27	5798100145	Ass'y Flywheel R	1
28	5798100059	Metal	1
29	5798100056	Wire(11P)	1
30	5798100058	Holder Wire	1
31	5798100141	P.C.Board	1
32	5798100052	Switch Mode	1

No.	PART No.	PART NAME	
33	5798100289	Switch Leaf	2
34	5798100002	Hall IC.	1
35	5798100161	Brake FW	1
39	5798100286	Belt Main	1

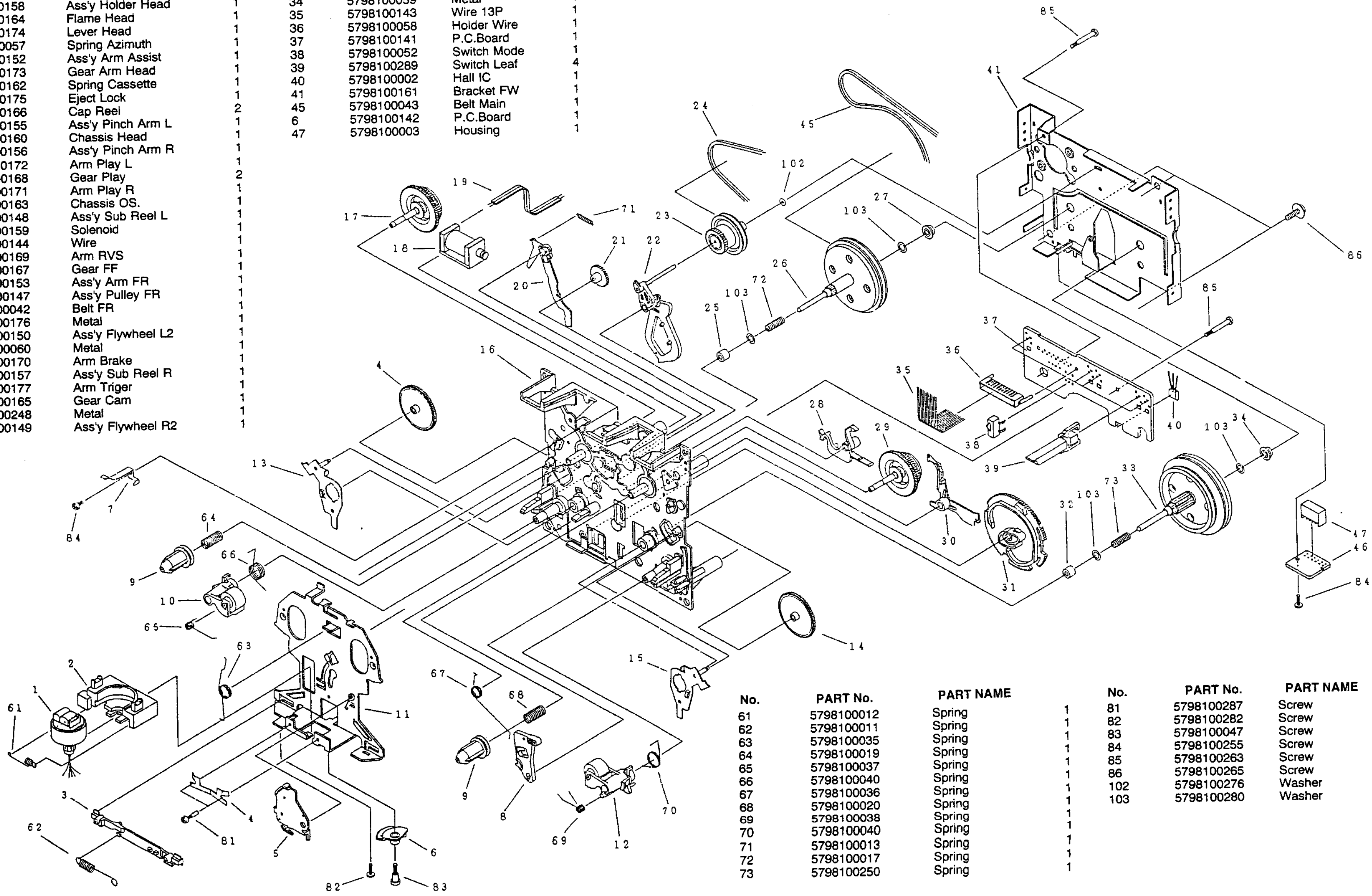


No.	PART No.	PART NAME	
61	5798100283	Spring	1
62	5798100035	Spring	1
63	5798100019	Spring	2
64	5798100036	Spring	1
65	5798100285	Spring	1
66	5798100040	Spring	1
67	5798100284	Spring	1
68	5798100250	Spring	1
81	5798100288	Screw	1
82	5798100261	Screw	1
83	5798100255	Screw	2
84	5798100263	Screw	2
85	5798100265	Screw	3
102	5798100276	Washer	1
103	5798100280	Washer	2

EXPLODED VIEW (Mechanis) (III)

No.	PART No.	PART NAME	
1	5798100158	Ass'y Holder Head	1
2	5798100164	Flame Head	1
3	5798100174	Lever Head	1
4	5798100057	Spring Azimuth	1
5	5798100152	Ass'y Arm Assist	1
6	5798100173	Gear Arm Head	1
7	5798100162	Spring Cassette	1
8	5798100175	Eject Lock	1
9	5798100166	Cap Reel	2
10	5798100155	Ass'y Pinch Arm L	1
11	5798100160	Chassis Head	1
12	5798100156	Ass'y Pinch Arm R	1
13	5798100172	Arm Play L	1
14	5798100168	Gear Play	2
15	5798100171	Arm Play R	1
16	5798100163	Chassis OS.	1
17	5798100148	Ass'y Sub Reel L	1
18	5798100159	Solenoid	1
19	5798100144	Wire	1
20	5798100169	Arm RVS	1
21	5798100167	Gear FF	1
22	5798100153	Ass'y Arm FR	1
23	5798100147	Ass'y Pulley FR	1
24	5798100042	Belt FR	1
25	5798100176	Metal	1
26	5798100150	Ass'y Flywheel L2	1
27	5798100060	Metal	1
28	5798100170	Arm Brake	1
29	5798100157	Ass'y Sub Reel R	1
30	5798100177	Arm Triger	1
31	5798100165	Gear Cam	1
32	5798100248	Metal	1
33	5798100149	Ass'y Flywheel R2	1

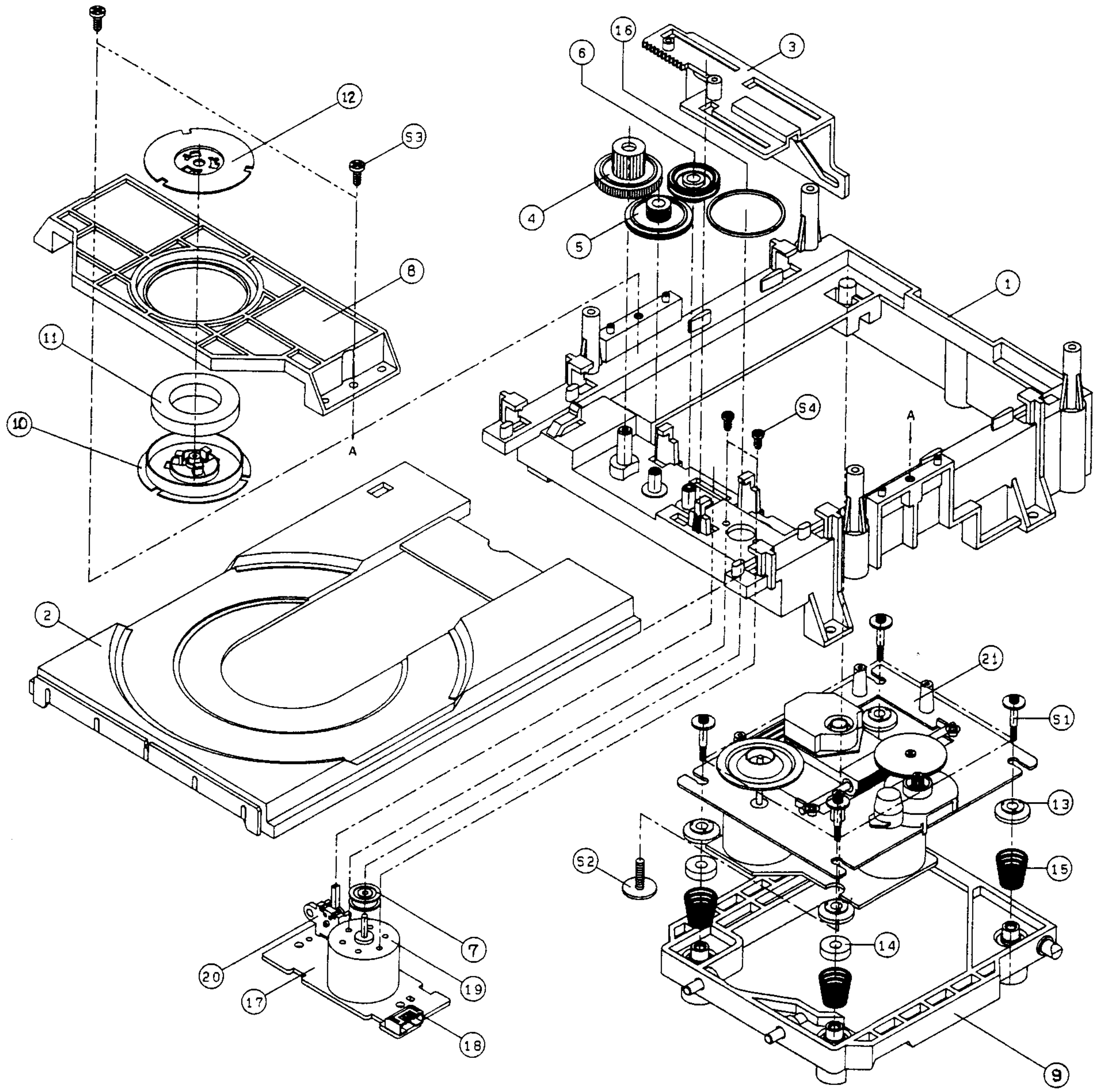
No.	PART No.	PART NAME	
34	5798100059	Metal	1
35	5798100143	Wire 13P	1
36	5798100058	Holder Wire	1
37	5798100141	P.C.Board	1
38	5798100052	Switch Mode	1
39	5798100289	Switch Leaf	4
40	5798100002	Hall IC	1
41	5798100161	Bracket FW	1
45	5798100043	Belt Main	1
6	5798100142	P.C.Board	1
47	5798100003	Housing	1



No.	PART No.	PART NAME	
61	5798100012	Spring	1
62	5798100011	Spring	1
63	5798100035	Spring	1
64	5798100019	Spring	1
65	5798100037	Spring	1
66	5798100040	Spring	1
67	5798100036	Spring	1
68	5798100020	Spring	1
69	5798100038	Spring	1
70	5798100040	Spring	1
71	5798100013	Spring	1
72	5798100017	Spring	1
73	5798100250	Spring	1

No.	PART No.	PART NAME	
81	5798100287	Screw	2
82	5798100282	Screw	1
83	5798100047	Screw	1
84	5798100255	Screw	2
85	5798100263	Screw	2
86	5798100265	Screw	3
102	5798100276	Washer	1
103	5798100280	Washer	4

EXPLODED VIEW (CD Mechanism)



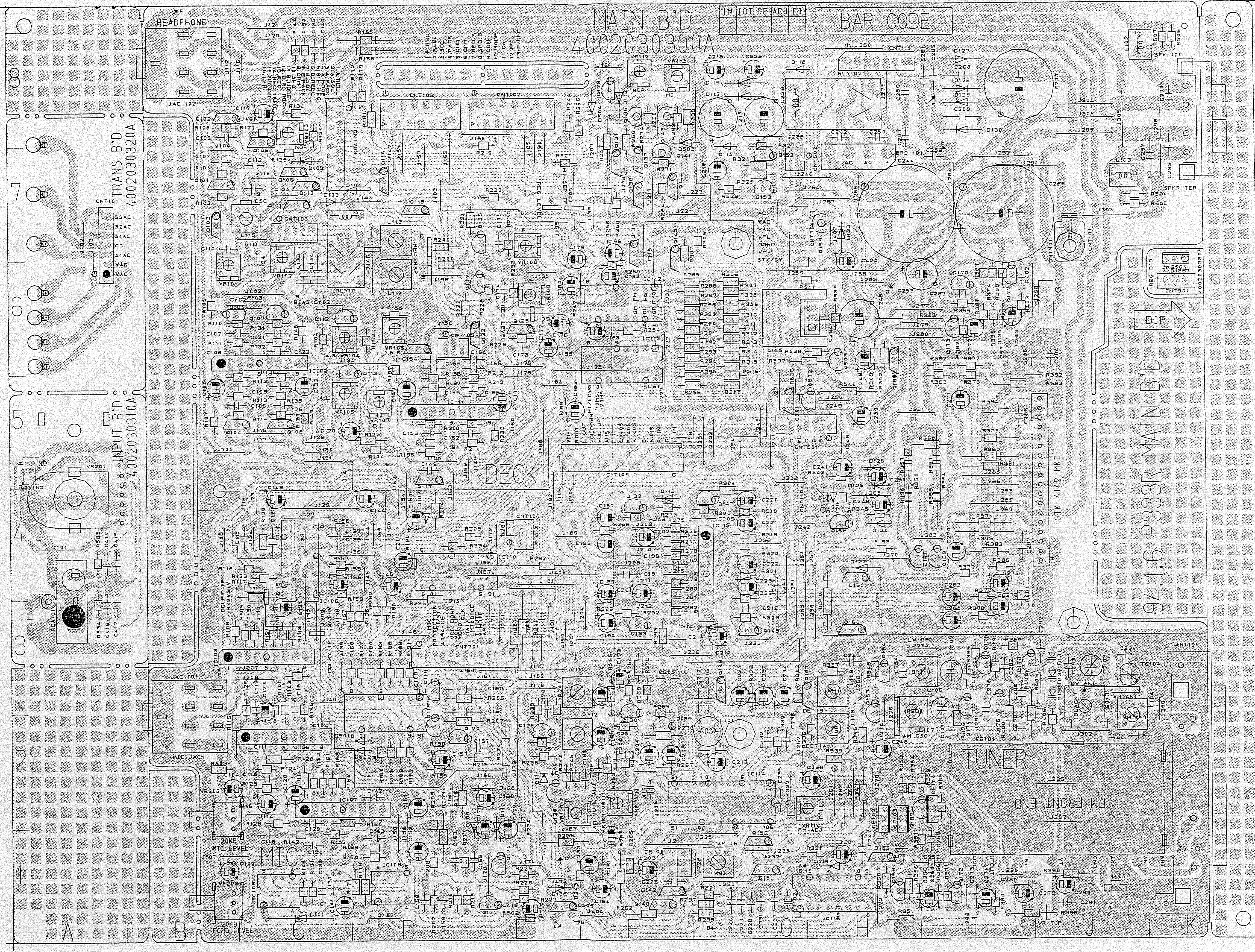
PART NO.: 5728000430

PARTS LIST OF DISK MECHANISM UNIT

NO.	Part No.	REV.	Description	Q'ty	Remark
1	6021601210		BODY MECHA	1	
2	6021800310		TRAY. DISC	1	BLACK
3	7142000410		CAM SLIDE	1	
4	7103001610		GEAR LOADING	1	
5	7103001710	A	GEAR CENTER	1	
6	7103001810		GEAR PULLEY	1	
7	7113001310		PULLEY MOTOR	1	
8	6023601210		CHUCK FRAME	1	
9	6062000320		BASE DRIVE UNIT	1	A'SSY SHAFT
10	6063103010		BASE MAGNET	1	
11	5125000910		MAGNET	1	
12	6023408610		COVER MAGNET	1	
13	6715018420		RUBBER DAMPING	4	
14	6705021910		SPONGE DAMPING	2	FRONT (2EA)
15	6555009220		SPRING DAMPING	4	
16	7165002610		BELT (Ø24X1X1)	1	
17			PCB, Motor	1	
18	4428525550		CNT GIL-05P-S2L2-EF	1	
19	5558200210		MOTOR RF 310T-11400	1	
20	4638003210		S/W LEVER (SSCF-21)	1	
21	5708012910		CD DRIVE UNIT	1	KSM-2101-AAM
Screws					
S1	8155001120		SCREW DAMPING	4	
S2	8155001210		SCREW MECHA	1	
S3	8009120051		SCREW BM 2x5Y	2	
S4	8159626081		SCREW #2WPT 2.6x8Y	2	

PC BOARD

MAIN P. C. BOARD
(TOP VIEW)


MAIN B'D
4002030300A
IN ICT OP ADJ FI
BAR CODE
HEADPHONE
JAC 102
TRANS B'D
4002030320A
INPUT B'D
4002030310A
VR201
RCA101
DECK
CNT106
STK 4142 MKII
94.1.6 P33R MAIN B'D
DIP
REG B'D
SPKR TER
SPK 101
JAC 101
MIC JACK
20KB
MIC LEVEL
MIC
20KB
ECHO LEVEL
TUNER
FM FRONT END
ANT101
AM ANT
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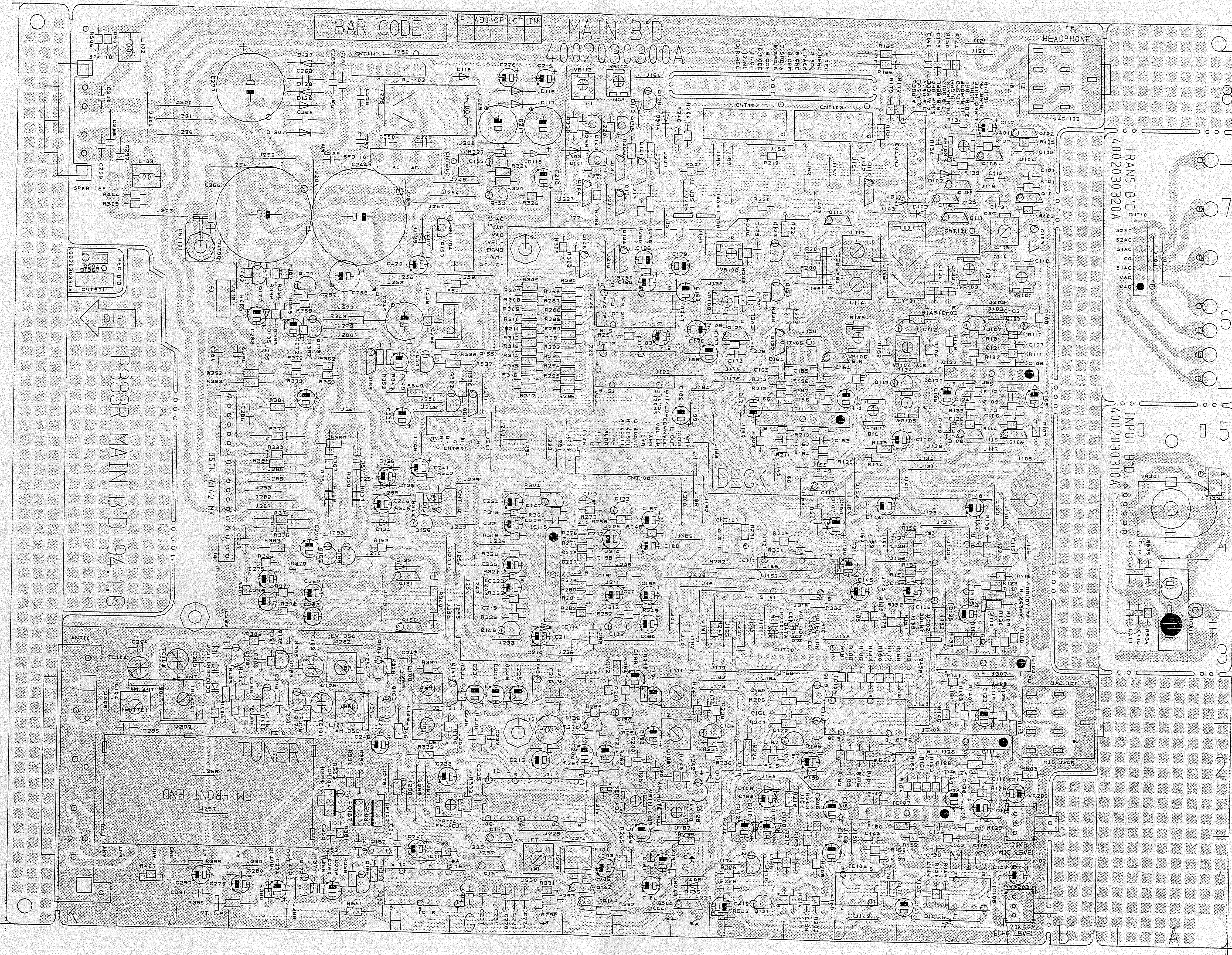
MAIN P. C. BOARD
(BOTTOM VIEW)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MAIN B'D
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TRANS B'D
4002030320A
INPUT B'D
4002030310A
P333R MAIN B'D 94.1.6
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DECK
TUNER
FM FRONT END
MIC JACK
MIC
20KB
MIC LEVEL
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ECHO LEVEL
SPKR TER
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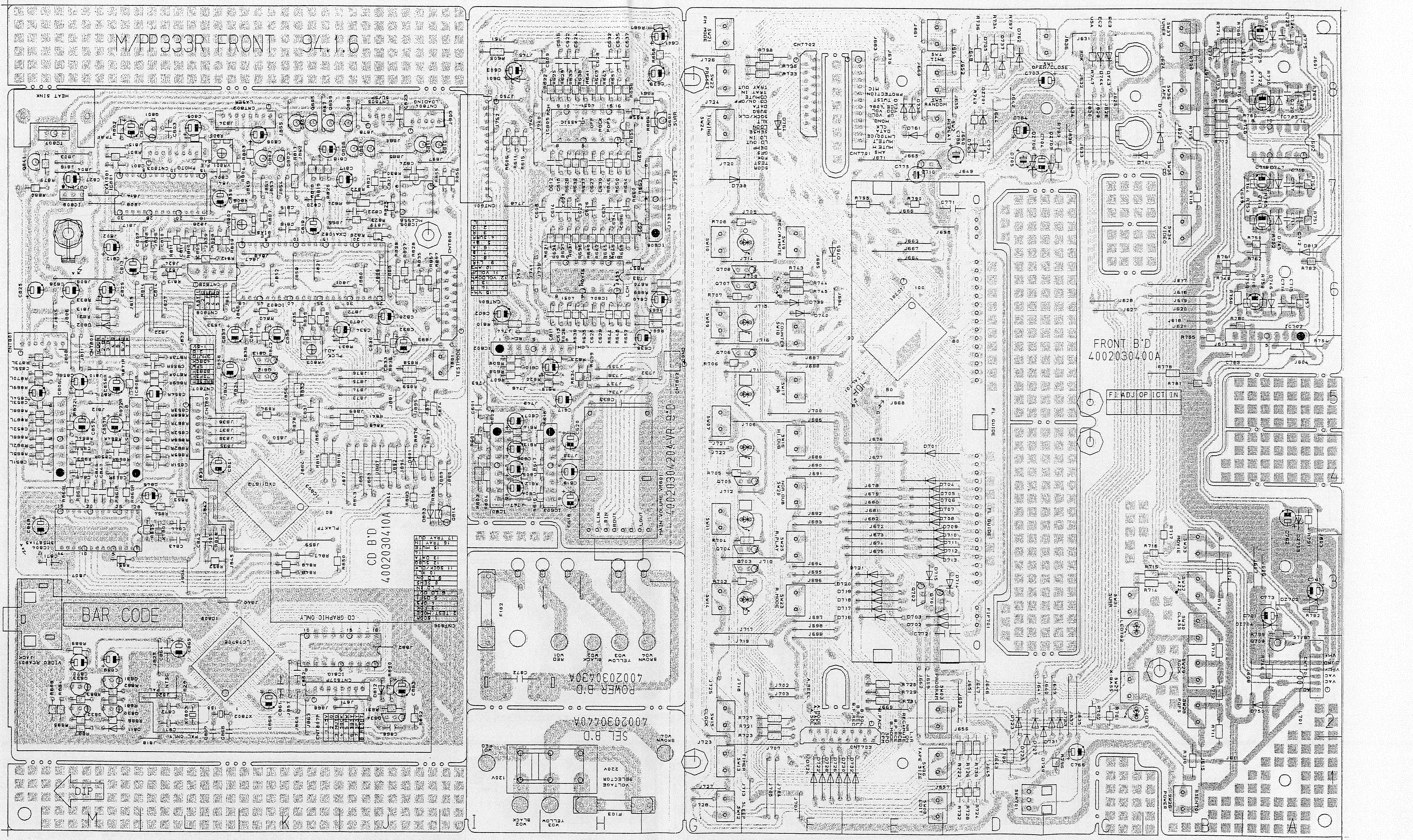
FRONT P. C. BOARD
(TOP VIEW)


M/PP333R FRONT 94.1.6
HEAT SINK
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CD B'D
4002030410A
CD GRAPHIC ONLY
POWER B'D
4002030430A
SEL B'D
4002030440A
VOLTAGE SELECTOR
220V
120V
FRONT B'D
4002030400A
FL ADJ OPTION
FL GUIDE
DIP
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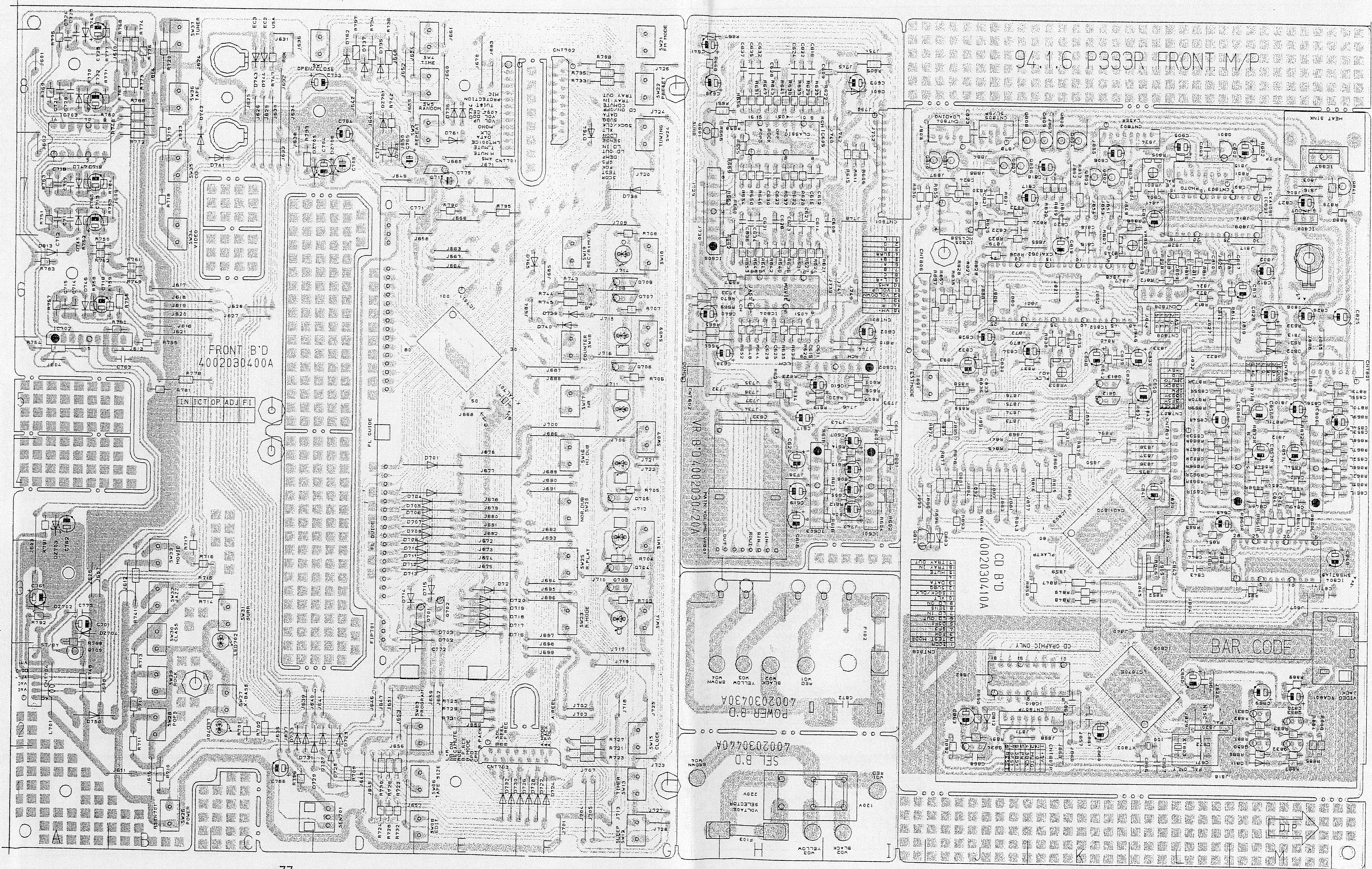
FRONT P. C. BOARD
(BOTTOM VIEW)


94.1.6 P333R FRONT M/P
FRONT B'D
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VR B'D 4002030420A
CD B'D
4002030410A
POWER B'D
4002030430A
SEL B'D
4002030440A
BAR CODE
IN ICT OP ADJ F I
FL GUIDE
FIP701
CNT702
CNT703
HEAT SINK
CD GRAPHIC ONLY
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ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Version
PCB5		**Ass'y P.C.B Main**	1	
40	4438005520	Jack, Phone	1	
41	7505206220	Heatsink, Regulator TR	1	
42	4408106410	Terminal, Speaker	1	
44	4408107110	Terminal, Antenna	1	D Only
	4408101610	Terminal, Antenna	2	
58	6165146110	Shield Fence, Volume	2	Option
VR3	3208052210	Volume, Mic/Echo	1	
	152622102058	Wire, Lug #22 200 mm, Black	1	
	152622102414	Wire, H-WRAP #22 240 mm, Black	1	
	152622103258	Wire, Lug #22 320 mm, Black	1	
	152624021044	Wire, HI-WRAP #24 100 mm, Red	1	
	152624030844	Wire, HI-WRAP #24 80 mm, Orange	1	
	152624101244	Wire, HI-WRAP #24 120 mm, Black	1	
	4235007310	Terminal, Ground	1	
BRD101	2058100146	Diode, Bridged, PBL303	1	
C101	3679562120	Mylar 0.0056 uF 100 V J	1	
C102	3479247971	Electrolytic SA 4.7 uF 50 V M	1	D Only
		Not Used.		
C103	3679562120	Mylar 0.0056 uF 100 V J	1	
C104	3479210971	Electrolytic SA 1 uF 50 V M	1	D Only
		Not Used.		
C105	3479210971	Electrolytic SA 1 uF 50 V M	1	
C106	3679273120	Mylar 0.027 uF 100 V J	1	
C107	3519681935	Ceramic Tubular 680 pF 50 V J	1	
C109	3679223120	Mylar 0.022 uF 100 V J	1	
C110	3679822120	Mylar 0.0082 uF 100 V J	1	
C112	3679223120	Mylar 0.022 uF 100 V J	1	
C113	3679103120	Mylar 0.01 uF 100 V J	1	
C114	3519102935	Ceramic Tubular 1000 pF 50 V J	1	D Only
		Not Used.		
C115	3519561935	Ceramic Tubular 560 pF 50 V J	1	
C116	3479247971	Electrolytic SA 4.7 uF 50 V M	1	D Only
		Not Used.		
C117	3479210071	Electrolytic SA 10 uF 50 V M	1	
C118	3679332120	Mylar 0.0033 uF 100 V J	1	D Only
		Not Used.		
C120	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C121	3519681935	Ceramic Tubular 680 pF 50 V J	1	
C123	3479247971	Electrolytic SA 4.7 uF 50 V M	1	D Only
		Not Used.		
C124	3679223120	Mylar 0.022 uF 100 V J	1	
C125	3479268871	Electrolytic SA 0.68 uF 50 V M	1	
C126	3679273120	Mylar 0.027 uF 100 V J	1	
C127	3519102935	Ceramic Tubular 1000 pF 50 V J	1	
C128	3479247871	Electrolytic SA 0.47 uF 50 V M	1	D Only
		Not Used.		
C129	3519221935	Ceramic Tubular 220 pF 50 V J	1	D Only
		Not Used.		
C130	3679332120	Mylar 0.0033 uF 100 V J	1	D Only
		Not Used.		
C131	3519101935	Ceramic Tubular 0.0022 pF 50 V J	1	
C132	3479210971	Electrolytic SA 1 uF 50 V M	1	
C133/C134	3519104935	Ceramic Tubular 0.1 uF 50 V Z	2	FTZ
C135	3519561935	Ceramic Tubular 560 pF 50 V J	1	
C136	3479268871	Electrolytic SA 0.68 uF 50 V M	1	
C137	3519102935	Ceramic Tubular 1000 pF 50 V J	1	
C138	3519561935	Ceramic Tubular 560 pF 50 V J	1	
C139	3519221935	Ceramic Tubular 220 pF 50 V J	1	D Only
		Not Used.		FTZ
C140	3519561935	Ceramic Tubular 560 pF 50 V J	1	
C141	3479233971	Electrolytic SA 3.3 uF 50 V M	1	D Only
		Not Used.		
C142	3519221935	Ceramic Tubular 220 pF 50 V J	1	D Only
		Not Used.		
C143	3679152120	Mylar 0.0015 uF 100 V J	1	D Only
		Not Used.		
C144	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C145	3479210071	Electrolytic SA 10 uF 50 V M	1	
C146	3479247871	Electrolytic SA 0.47 uF 50 V M	1	
C147	3479210971	Electrolytic SA 1 uF 50 V M	1	
C148	3479210071	Electrolytic SA 10 uF 50 V M	1	
C149	3679273120	Mylar 0.027 uF 100 V J	1	
C150	3479310121	Electrolytic SG 100 uF 10 V M	1	
C151/C152	3479247971	Electrolytic SA 4.7 uF 50 V M	2	D Only
		Not Used.		
C153	3679223120	Mylar 0.022 uF 100 V J	1	
C154	3519331935	Ceramic Tubular 330 pF 50 V J	1	
C155	3519471935	Ceramic Tubular 470 pF 50 V J	1	
C157	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C159	3679682120	Mylar 0.0068 uF 100 V J	1	D Only
		Not Used.		
C160/C161	3519102935	Ceramic Tubular 1000 pF 50 V J	2	
C162	3679223120	Mylar 0.022 uF 100 V J	1	
C163	3679682120	Mylar 0.0068 uF 100 V J	1	D Only
		Not Used.		
C164	3519331935	Ceramic Tubular 330 pF 50 V J	1	
C165	3519471935	Ceramic Tubular 470 pF 50 V J	1	
C167	3519102935	Ceramic Tubular 1000 pF 50 V J	1	
C168	3479347041	Electrolytic SG 47 uF 25 V M	1	D Only
		Not Used.		
C169	3679822120	Mylar 0.0082 uF 100 V J	1	D Only
		Not Used.		
C170	3479310121	Electrolytic SG 100 uF 10 V M	1	D Only
C171	3479210971	Electrolytic SA 1 uF 50 V M	1	
C172	3479310121	Electrolytic SG 100 uF 10 V M	1	D Only
		Not Used.		
C173	3679273120	Mylar 0.027 uF 100 V J	1	
C174/C175	3679224122	Mylar 0.22 uF 100 V J	2	
C176/C177	3479247971	Electrolytic SA 4.7 uF 50 V M	2	
C178	3679392120	Mylar 0.0039 uF 100 V J	1	
C179	3479210071	Electrolytic SA 10 uF 50 V M	1	
C180	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C181	3479310121	Electrolytic SG 100 uF 10 V M	1	D Only
		Not Used.		
C182	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C183	3409210131	Electrolytic SA 100 uF 16 V M	1	
C184	3479210071	Electrolytic SA 10 uF 50 V M	1	
C186	3679392120	Mylar 0.0039 uF 100 V J	1	
C187	3479233971	Electrolytic SA 3.3 pF 50 V M	1	
C188/C189	3479210971	Electrolytic SA 1 uF 50 V M	2	
C190	3479233971	Electrolytic SA 3.3 uF 50 V M	1	
C191	3519101935	Ceramic Tubular 100 pF 50 V J	1	
C192	3409210131	Electrolytic SA 100 uF 16 V M	1	
C193/C194	3479222971	Electrolytic SA 2.2 uF 50 V M	2	
C195	3679562120	Mylar 0.0056 uF 100 V J	1	
C195	3679822120	Mylar 0.0082 uF 100 V J	1	
C196/C197	3479210071	Electrolytic SA 10 uF 50 V M	2	
C198	3519101935	Ceramic Tubular 100 pF 50 V J	1	
C199	3479347041	Electrolytic SG 47 uF 25 V M	1	
C200	3679562120	Mylar 0.0056 uF 100 V J	1	
C200	3679822120	Mylar 0.0082 uF 100 V J	1	
C201-C203	3479210971	Electrolytic SA 1 uF 50 V M	3	
C204	3479222971	Electrolytic SA 2.2 uF 50 V M	1	
C205	3519223520	Ceramic Tubular 0.022 uF 25 V Z	1	
C206	3519470935	Ceramic Tubular 47 pF 50 V J	1	
C207	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	

Ref. No.	Part No.	Description	Q'ty	Version
C208	3479222971	Electrolytic SA 2.2 uF 50 V M	1	
C209	3519681935	Ceramic Tubular 680 pF 50 V J	1	
C210	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	
C211	3519820935	Ceramic Tubular 82 pF 50 V J	1	D Only
C213	3479210071	Electrolytic SA 10 uF 50 V M	1	
C214	3479310121	Electrolytic SG 100 uF 10 V M	1	
C215	3479310141	Electrolytic SG 100 uF 25 V M	1	
C216	3519101935	Ceramic Tubular 100 pF 50 V J	1	
C216	3519331935	Ceramic Tubular 330 pF 50 V J	1	D Only
C217	3479310161	Electrolytic SG 100 uF 35 V M	1	
C218	3479310121	Electrolytic SG 100 uF 10 V M	1	
C219	3519681935	Ceramic Tubular 680 pF 50 V J	1	
C220	3479222971	Electrolytic SA 2.2 uF 50 V M	1	
C221/C222	3479210971	Electrolytic SA 1 uF 50 V M	2	
C223	3479222971	Electrolytic SA 2.2 uF 50 V M	1	
C224	3519101935	Ceramic Tubular 100 pF 50 V J	1	
C225	3479210971	Electrolytic SA 1 uF 50 V M	1	
C226	3479310141	Electrolytic SG 100 uF 25 V M	1	
C227/C228	3519101935	Ceramic Tubular 100 pF 50 V J	2	
C229	3479310161	Electrolytic SG 100 uF 35 V M	1	
C230	3479233871	Electrolytic SA 0.33 uF 50 V M	1	
C231	3528330210	Ceramic Tubular (CH) 33 pF 50 V J	1	
C232	3679223120	Mylar 0.022 uF 100 V J	1	
C234	3479210971	Electrolytic SA 1 uF 50 V M	1	
C235	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	
C236	3679392120	Mylar 0.0039 uF 100 V J	1	
C237	3528330210	Ceramic Tubular (CH) 33 pF 50 V J	1	
C238	3479210971	Electrolytic SA 1 uF 50 V M	1	
C239	3479322141	Electrolytic SG 220 uF 25 V M	1	
C240	3479347041	Electrolytic SG 47 uF 25 V M	1	
C241	3479233871	Electrolytic SA 0.33 uF 50 V M	1	
C242	3679473120	Mylar 0.047 uF 100 V J	1	
C243	3519223935	Ceramic Tubular 0.022 uF 50 V Z	1	D Only
C244	3419533294	⚠ Electrolytic SG 3300 uF 40 V M	1	
C245	3409347179	Electrolytic SG 470 uF 50V M	1	
C246	3479347041	Electrolytic SG 47 uF 25 V M	1	
C247	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	
C248/C249	3479347041	Electrolytic SG 47 uF 25 V M	2	
C250	3679473120	Mylar 0.047 uF 100 V J	1	
C251	3479310121	Electrolytic SG 100 uF 10 V M	1	
C252	3519101935	Ceramic Tubular 100 pF 50 V J	1	
C253	3479347071	Electrolytic SG 47 uF 50 V M	1	
C254	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	D Only
C255	3519223520	Ceramic Tubular 0.022 uF 25 V Z	1	
C256/C257	3679473120	Mylar 0.047 uF 100 V J	2	
C258	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	
C259	3679473120	Mylar 0.047 uF 100 V J	1	
C260	3479210971	Electrolytic SA 1 uF 50 V M	1	
C261	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	
C262/C263	3479210971	Electrolytic SA 1 uF 50 V M	2	
C264	3679103120	Mylar 0.01 uF 100 V J	1	
C265	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	
C266	3419533294	⚠ Electrolytic SG 3300 uF 40 V M	1	
C267	3519471935	Ceramic Tubular 470 pF 50 V J	1	
C268/C269	3519473935	Ceramic Tubular 0.047 uF 50 V Z	2	
C270-C272	3479347041	Electrolytic SG 47 uF 25 V M	3	
C273	3519223520	Ceramic Tubular 0.022 uF 25 V Z	2	
C274-C276	3479347041	Electrolytic SG 47 uF 25 V M	3	
C277	3409322249	⚠ Electrolytic SG 2200 uF 25 V M	1	
C278	3619471110	Poly 470 pF 50 V J	1	
C279	3479322141	Electrolytic SG 220 uF 16 V M	1	
C280	3519223520	Ceramic Tubular 0.022 uF 25 V Z	1	
C282	3619181110	Poly 180 pF 50 V J	1	D Only
C283	3479210071	Electrolytic SA 10 uF 50 V M	1	

Ref. No.	Part No.	Description	Q'ty	Version
C284/C285	3679473120	Mylar 0.047 uF 100 V J	2	
C286/C287	3519470935	Ceramic Tubular 47 pF 50 V J	2	
C288	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	D Only
C289	3519223935	Ceramic Tubular 0.022 uF 50 V Z	1	D Only
C290	3479222871	Electrolytic SA 0.22 uF 50 V M	1	
C291	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	
C292	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	D Only
C295	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	
C299/C300	3519472935	Ceramic Tubular 0.0047 uF 50 V Z	2	D Only
C301	3479310121	Electrolytic SG 100 uF 10 V M	1	
C302	3479347041	Electrolytic SG 47 uF 25 V M	1	
C303	3679392120	Mlyar 0.0039 uF 100 V J	1	
C304	3679182120	Mlyar 0.0018 uF 100 V J	1	
		Not Used.		D Only
C385	3519100935	Ceramic Tubular 10 pF 50 V D	1	D Only
C642	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C418	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	
C420	3479210971	Electrolytic SA 1 uF 50 V M	1	
C421/C422	3519471935	Ceramic Tubular 470 pF 50 V J	2	
		Not Used.		D Only
CF101	3908001380	Filter, SFZ450F	1	
CF102-CF104	3908011011	Filter, SFE10.7MS3GH10.7MS	3	
CN101	4428516410	Wafer 5P	1	
CN105	4428516210	Wafer 3P	1	
CN110	4428516110	Wafer 2P	1	
CP101	4428516410	Wafer 5P	1	
CP102	4428525340	Wafer 13P	1	
CP103	4428525320	Wafer 11P	1	
CP105	4428516210	Wafer 3P	1	
CP107	4428516210	Wafer 3P	1	
CP108	4428515807	Wafer FPC 15P	1	
CP110	052438012201	Ass'y Posistor	1	
CP111	4428505410	Wafer 7P	1	
CP701	4428518610	Wafer 13P	1	
CP703	4428526280	Wafer FPC 16P	1	
CP704	4428505410	Wafer 7P	1	
CN705	4428508210	Wafer 2P	1	
D102-D104	2058322101	1N4148, Switching	3	
D107	2258599104	Zener, UZ 5.6BSB	1	
D108	2258599116	Zener, UZ 12.0BSC	1	
		Not Used.		D Only
D109/D110	2258599123	Zener, UZ 8.2BSB	2	
		Not Used.		D Only
D111-D113	2058322101	1N4148, Switching	3	
D114	2258599105	Zener, UZ 6.2BSB	1	
D115	2258599128	Zener, UZ 30.0BSD	1	
D116/D117	2258100135	1N4002, Rectifier	2	
D118	2058322101	1N4148, Switching	1	
D119	2258599103	Zener, UZ 5.1BSB	1	
D120	2258599130	Zener, UZ 7.5BSC	1	
D122	2058322101	1N4148, Switching	1	
D123	2258100135	⚠ 1N4002, Rectifier	1	
D124	2258599121	Zener, UZ 6.8BSC	1	
D125/D126	2058322101	1N4148, Switching	2	
D127-D130	2258100135	⚠ 1N4002, Rectifier	4	
D131/D132	2058819105	Diode, Varactor, KV1235Z	2	
D133	2058819105	Diode, Varactor, KV1235Z	1	D Only
D134	2258599104	Zener, UZ 5.6BSB	1	
D135	2258599108	Zener, UZ 13.0BSC	1	
D136	2058322101	1N4148, Switching	1	
D503/D504	2058322101	1N4148, Switching	2	
FE101	3928801890	Front-end, FM Tuner, FE407-G60	1	D Only
FE101	3928801930	Front-end, FM Tuner, FE306-A15	1	
IC101	2178317124	STK4142, Hybrid	1	

Ref. No.	Part No.	Description	Q'ty	Version
IC102	2168206106	KIA6259S	1	
IC103/IC104	2168206104	KIA4559S/KIA75559S	2	
		Not used.		D Only
IC105	2168010102	MN3101	1	
		Not used.		D Only
IC106	2168002113	KA22712, Dolby B	1	
IC107	2168206104	KIA4559S/KIA75559S	1	
		Not used.		D Only
IC108	2138009115	MC14094	1	
IC109	2168010103	MN3007	1	
		Not used.		D Only
IC110	2138001114	GD4502B	1	
IC111	2168206106	KIA6259S	1	
IC112	2168022124	CXA1198AP	1	
IC113	2138001114	GD4052B	1	
IC114	2168417114	LA1851N	1	
IC115	2168206104	KIA4559S/KIA75559S	1	
IC116	2138017112	LM7001	1	
L101	2648601430	Coil, Inductor, 20.8mH 20.8 mH	1	D Only
L102/L103	2648001010	Coil, Inductor, 0.5uH 0.5 uH	2	
L104	2608201120	Coil, AM-ANT	1	
L105	2608201130	Coil, LW-ANT	1	D Only
L106	2638401060	Coil, LW-OSC	1	D Only
L107	2638201150	Coil, AM-OSC	1	
L108	2628000070	Coil, FM DET B	1	
L109	2628000060	Coil, FM DET A	1	
L110	2848001250	Coil, AM-IFT P-7SG	1	
L111/L112	2658301100	Coil, MPX 19 kHz FB-7SG	2	
L113/L114	2658501080	Coil, REC Trap FB-7SG	2	
L115	2638201250	Coil, Bias 85 kHz	1	
Q101/Q102	2228406117	KTC2236A	2	
Q103/Q104	2208622108	DTC114TS	2	
Q105	2208606112	KTD1302B, NPN Silicon	1	
Q106	2228106107	BKTA965Y/KTA1023, PNP Silicon	1	
Q107	2208606112	KTD1302B, NPN Silicon	1	
Q108-Q110	2208622108	DTC114TS	3	
Q111	2208222105	DTA114YS, PNP Silicon	1	
Q112/Q113	2208606112	KTD1302B, NPN Silicon	2	
Q114	2208222106	DTC114YS	1	
Q115	2208222105	DTA114YS, PNP Silicon	1	
Q116/Q117	2208622108	DTC114TS	2	
Q118-Q120	2208406103	KTC1923Y	3	
Q121	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
		Not Used.		D Only
Q122	2208622108	DTC114TS	1	
Q123	2208606112	KTD1302B, NPN Silicon	1	
Q124	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
		Not Used.		D Only
Q125	2208622108	DTC114TS	1	
Q126	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q127	2208606112	KTD1302B, NPN Silicon	1	
Q128	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q129	2208206105	KTA1015Y/BKTA1266, NPN Silicon	1	
Q130	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q131	2208222106	DTC114YS	1	
Q132/Q133	2208606112	KTD1302B, NPN Silicon	2	
Q134	2208222106	DTC114YS	1	
Q136	2208206113	MPSA56, PNP Silicon	1	
Q137/Q138	2208222106	DTC114YS	2	
Q139	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q140	2208622108	DTC114TS	1	
Q141	2208206113	MPSA56, PNP Silicon	1	
Q142	2208622108	DTC114TS	1	
Q143	2208206113	MPSA56, PNP Silicon	1	

Ref. No.	Part No.	Description	Q'ty	Version
Q144	2208222106	DTC114YS	1	
Q145	2208222105	DTA114YS, PNP Silicon	1	
Q147	2208606112	KTD1302B, NPN Silicon	1	
Q148	2208222106	DTC114YS	1	
Q149	2208606112	KTD1302B, NPN Silicon	1	
Q150/Q151	2208222105	DTA114YS, PNP Silicon	2	D Only
Q152/Q153	2208206105	KTA1015Y/BKTA1266, NPN Silicon	2	
Q155	2028106109	2SB1367Y/KTB1367Y, PNP	1	
Q157	2208222105	DTA114YS, PNP Silicon	1	
Q158	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q159	2208606114	MPSA06Y, NPN	1	
Q160	2208222106	DTC114YS	1	
Q161/Q162	2208222105	DTA114YS, PNP Silicon	2	
Q163/Q164	2208606104	KTC1815Y/BKTC3198, NPN Silicon	2	D Only
Q165	2228406120	BKTC2235Y/KTC1027, NPN Silicon	1	
Q166	2218211100	FET, K168 DTZ	1	
Q167	2208406103	KTC1923Y	1	
Q168-Q170	2208606+04	KTC1815Y/BKTC3198, NPN Silicon	3	
Q172	2208606108	KTC2240BL/BKTC3200, NPN Silicon	1	
Q173	2208206105	KTA1015Y/BKTA1266, NPN Silicon	1	
Q174-Q176	2208606104	KTC1815Y/BKTC3198, NPN Silicon	3	D Only
Q177	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q178	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	D Only
Q504	2028106109	B1367	1	
Q505	2208622108	DTC114TS	1	
R101	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R102	3069109970	Carbon Film 10 ohm 1/5 W J	1	
R103/R104	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R105	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R106	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R107	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R108	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
		Not Used.		D Only
R109	3069102970	Carbon Film 1 kohm 1/5 W J	1	
		Not Used.		D Only
R110	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R111	3069470970	Carbon Film 47 ohm 1/5 W J	1	
R112	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R113	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R114	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R115	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R116	3069103970	Carbon Film 10 kohm 1/5 W J	1	
		Not Used.		D Only
R117	3069123970	Carbon Film 12 kohm 1/5 W J	1	
		Not Used.		D Only
R118	3069102970	Carbon Film 1 kohm 1/5 W J	1	
		Not Used.		D Only
R122	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R123	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R124	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
		Not Used.		D Only
R125	3069181970	Carbon Film 180 ohm 1/5 W J	1	
		Not Used.		D Only
		Not Used.		D Only
		Not Used.		D Only
		Not Used.		D Only
		Not Used.		D Only
R126	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R127	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R128	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R129	3069563970	Carbon Film 56 kohm 1/5 W J	1	
R130	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R131	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R132	3069470970	Carbon Film 47 ohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R133	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	D Only
		Not Used.		
R134	3069330970	Carbon Film 33 ohm 1/5 W J	1	
R135	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R136	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R137	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R138	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R139	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R140	3069103970	Carbon Film 10 kohm 1/5 W J	1	D Only
		Not Used.		
R141	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R142	3069563970	Carbon Film 56 kohm 1/5 W J	1	D Only
		Not Used.		
R143	3069104970	Carbon Film 100 kohm 1/5 W J	1	D Only
		Not Used.		
R144	3069152970	Carbon Film 1.5 kohm 1/5 W J	1	
R145	3069394970	Carbon Film 390 kohm 1/5 W J	1	D Only
		Not Used.		
R146	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	D Only
		Not Used.		
R147	3069242970	Carbon Film 2.4 kohm 1/5 W J	1	D Only
		Not Used.		
R148	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R149	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R150	3069152970	Carbon Film 1.5 kohm 1/5 W J	1	
R151	3069394970	Carbon Film 390 kohm 1/5 W J	1	D Only
		Not Used.		
R152	3069124970	Carbon Film 120 kohm 1/5 W J	1	D Only
		Not Used.		
R153	3069101970	Carbon Film 100 ohm 1/5 W J	1	D Only
		Not Used.		
R154	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R155	3069183970	Carbon Film 18 kohm 1/5 W J	1	
R156	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R157	3069393970	Carbon Film 39 kohm 1/5 W J	1	
R158	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R159	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R160	3069333970	Carbon Film 33 kohm 1/5 W J	1	D Only
		Not Used.		
R161	3069124970	Carbon Film 120 kohm 1/5 W J	1	D Only
		Not Used.		
R162	3069183970	Carbon Film 18 kohm 1/5 W J	1	
R163	3069333970	Carbon Film 33 kohm 1/5 W J	1	D Only
		Not Used.		
R164	3069124970	Carbon Film 120 kohm 1/5 W J	1	D Only
		Not Used.		
R165/R166	3029221472	Metal Film 220 ohm 1 W J	2	
R167	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R168	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R169/R170	3069562970	Carbon Film 5.6 kohm 1/5 W J	2	D Only
		Not Used.		
R171	3069104970	Carbon Film 100 kohm 1/5 W J	1	D Only
		Not Used.		
R172	3069243970	Carbon Film 24 kohm 1/5 W J	1	
R173/R174	3069183970	Carbon Film 18 kohm 1/5 W J	2	
R175	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R176/R177	3069104970	Carbon Film 100 kohm 1/5 W J	2	
R178	3069104970	Carbon Film 100 kohm 1/5 W J	1	D Only
		Not Used.		
R179	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R181	3069243970	Carbon Film 24 kohm 1/5 W J	1	
R182	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R183/R184	3069104970	Carbon Film 100 kohm 1/5 W J	2	
R185	3069473970	Carbon Film 47 kohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R186	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R187	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R188	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R189	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R190	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R191	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R192	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R193	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R194	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R195	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R196	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R197	3069470970	Carbon Film 47 ohm 1/5 W J	1	
R198	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R199	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R200/R201	3069562970	Carbon Film 5.6 kohm 1/5 W J	2	
R202	3069392970	Carbon Film 3.9 kohm 1/5 W J	1	D Only
		Not Used.		
R203	3069154970	Carbon Film 150 kohm 1/5 W J	1	D Only
		Not Used.		
R204	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R205	3069104970	Carbon Film 100 kohm 1/5 W J	1	D Only
		Not Used.		
R206/R207	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R208	3069393970	Carbon Film 39 kohm 1/5 W J	1	D Only
		Not Used.		
R209	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R210	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R211/R212	3069104970	Carbon Film 100 kohm 1/5 W J	2	
R213	3069470970	Carbon Film 47 ohm 1/5 W J	1	
R214	3069104970	Carbon Film 100 kohm 1/5 W J	1	D Only
		Not Used.		
R215	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R216	3069181970	Carbon Film 180 ohm 1/5 W J	1	D Only
		Not Used.		
R217	3069392970	Carbon Film 3.9 kohm 1/5 W J	1	D Only
		Not Used.		
R218	3069393970	Carbon Film 39 kohm 1/5 W J	1	D Only
		Not Used.		
R219	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R220	3069153970	Carbon Film 15 kohm 1/5 W J	1	
R221	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R222	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R223	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R224	3029271472	Metal Film 270 ohm 1 W J	1	
R225/R226	3069562970	Carbon Film 5.6 kohm 1/5 W J	2	D Only
		Not Used.		
R227	3069184970	Carbon Film 180 kohm 1/5 W J	1	D Only
		Not Used.		
R228	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R229	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R230	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R231	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R232	3069184970	Carbon Film 180 kohm 1/5 W J	1	
R233	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R234	3069102970	Carbon Film 1 kohm 1/5 W J	1	D Only
		Not Used.		
R235/R236	3069302970	Carbon Film 3 kohm 1/5 W J	2	
R237	3069183970	Carbon Film 18 kohm 1/5 W J	1	
R238	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R239	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R240	3069183970	Carbon Film 18 kohm 1/5 W J	1	
R241	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R242	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R243	3069102970	Carbon Film 1 kohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R244	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R245	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R246	3069392970	Carbon Film 3.9 kohm 1/5 W J	1	
R247	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R248/R249	3069562970	Carbon Film 5.6 kohm 1/5 W J	2	
R250	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R251	3069824970	Carbon Film 820 kohm 1/5 W J	1	
R252	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R253	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R254	3069243970	Carbon Film 24 kohm 1/5 W J	1	
R255	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R256/R257	3069473970	Carbon Film 47 kohm 1/5 W J	2	
R258	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R259	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R260	3069153970	Carbon Film 15 kohm 1/5 W J	1	
R262/R263	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R264	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R265	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R266	3069751970	Carbon Film 750 ohm 1/5 W J	1	
R267	3069221970	Carbon Film 220 ohm 1/5 W J	1	
R268	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R269	3069824970	Carbon Film 820 kohm 1/5 W J	1	
R270	3069302970	Carbon Film 3 kohm 1/5 W J	1	
R271	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R272	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R273	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R274	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R275	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R276	3069121970	Carbon Film 120 ohm 1/5 W J	1	
R277	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R278	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R279	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R280	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R281	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R282	3069121970	Carbon Film 120 ohm 1/5 W J	1	
R283	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R284	3069751970	Carbon Film 750 ohm 1/5 W J	1	
R285	3069753970	Carbon Film 75 kohm 1/5 W J	1	
R286	3069563970	Carbon Film 56 kohm 1/5 W J	1	
R287	3069913970	Carbon Film 91 kohm 1/5 W J	1	
R288	3069153970	Carbon Film 15 kohm 1/5 W J	1	
R289	3069203970	Carbon Film 20 kohm 1/5 W J	1	
R290	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R291	3069154970	Carbon Film 150 kohm 1/5 W J	1	
R292	3069393970	Carbon Film 39 kohm 1/5 W J	1	
R293	3069433970	Carbon Film 43 kohm 1/5 W J	1	
R294	3069623970	Carbon Film 62 kohm 1/5 W J	1	
R295	3069273970	Carbon Film 27 kohm 1/5 W J	1	
R296	3069394970	Carbon Film 390 kohm 1/5 W J	1	
R297/R298	3069102970	Carbon Film 1 kohm 1/5 W J	2	
R299	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R300	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R301/R302	3069102970	Carbon Film 1 kohm 1/5 W J	2	
R304	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
R305	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R306	3069563970	Carbon Film 56 kohm 1/5 W J	1	
R307	3069753970	Carbon Film 75 kohm 1/5 W J	1	
R308	3069823970	Carbon Film 82 kohm 1/5 W J	1	
R309/R310	3069333970	Carbon Film 33 kohm 1/5 W J	2	
R311	3069683970	Carbon Film 68 kohm 1/5 W J	1	
R312	3069124970	Carbon Film 120 kohm 1/5 W J	1	
R313/R314	3069513970	Carbon Film 51 kohm 1/5 W J	2	
R315	3069273970	Carbon Film 27 kohm 1/5 W J	1	
R316	3069203970	Carbon Film 20 kohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R317	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R318-R321	3069222970	Carbon Film 2.2 kohm 1/5 W J	4	
R322	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
R323	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R324/R325	3069472970	Carbon Film 4.7 kohm 1/5 W J	2	
R326	3069100970	Carbon Film 10 ohm 1/5 W J	1	
R327	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R328	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
R330	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R331	3069271970	Carbon Film 270 ohm 1/5 W J	1	
R332	3069331970	Carbon Film 330 ohm 1/5 W J	1	D Only
R333	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R334/R335	3069123970	Carbon Film 12 kohm 1/5 W J	2	
R336	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R337	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R338	3069751970	Carbon Film 750 ohm 1/5 W J	1	
R339	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R339	3069273970	Carbon Film 27 kohm 1/5 W J	1	
R340	3029271472	Metal Film 270 ohm 1 W J	1	
R341	3069751970	Carbon Film 750 ohm 1/5 W J	1	
R342	3069182970	Carbon Film 1.8 kohm 1/5 W J	1	
R343	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R344	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R345	3069474970	Carbon Film 470 kohm 1/5 W J	1	
R346	3069473970	Carbon Film 47 kohm 1/5 W J	1	D Only
R347	3069331970	Carbon Film 330 ohm 1/5 W J	1	D Only
R348	3069473970	Carbon Film 47 kohm 1/5 W J	1	D Only
R349/R350	3069470970	Carbon Film 47 ohm 1/5 W J	2	
R351	3069221970	Carbon Film 220 ohm 1/5 W J	1	
R352	3069470970	Carbon Film 47 ohm 1/5 W J	1	
R353	3069331970	Carbon Film 330 ohm 1/5 W J	1	
R354	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R355	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R356	3069821970	Carbon Film 820 ohm 1/5 W J	1	
R357	3069182970	Carbon Film 1.8 kohm 1/5 W J	1	
R358	3059278582	Cement 0.27 ohm 5 W J	1	
R359	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R360	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R361	3069331970	Carbon Film 330 ohm 1/5 W J	1	
R362/R363	3069682970	Carbon Film 6.8 kohm 1/5 W J	2	
R364	3059278582	Cement 0.27 ohm 5 W J	1	
R365	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R366	3069152970	Carbon Film 1.5 kohm 1/5 W J	1	
R367	3069182970	Carbon Film 1.8 kohm 1/5 W J	1	
R368	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R369	3069221970	Carbon Film 220 ohm 1/5 W J	1	
R370	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R371	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R372/R373	3069479970	Carbon Fil 4.7 ohm 1/5 W J	2	
R374/R375	3029222472	Metal Film 2.2 kohm 1 W J	2	
R376	3069473970	Carbon Film 47 kohm 1/5 W J	1	D Only
R377/R378	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R379/R380	3029222472	Metal Film 2.2 kohm 1 W J	2	
R381	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R382	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R383/R384	3069682970	Carbon Film 6.8 kohm 1/5 W J	2	
R385	3069473970	Carbon Film 47 kohm 1/5 W J	1	D Only
R386	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R387	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R388	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R389	3069473970	Carbon Film 47 kohm 1/5 W J	1	D Only
R390	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R391	3069155970	Carbon Film 1.5 Mohm 1/5 W J	1	D Only
R392/R393	3069479970	Carbon Film 4.7 ohm 1/5 W J	2	

Ref. No.	Part No.	Description	Q'ty	Version
R394	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R395	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R396	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R398	3069271970	Carbon Film 270 ohm 1/5 W J	1	
R399	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R400	3069473970	Carbon Film 47 kohm 1/5 W J	1	D Only
R401	3069471970	Carbon Film 470 ohm 1/5 W J	1	
R402/R403	3069470970	Carbon Film 47 ohm 1/5 W J	2	
R404/R405	3069104970	Carbon Film 100 kohm 1/5 W J	2	
R406	3069104970	Carbon Film 100 kohm 1/5 W J	1	D Only
R407	3069823970	Carbon Film 82 kohm 1/5 W J	1	
R408	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R409	3069183970	Carbon Film 18 kohm 1/5 W J	1	
		Not Used.		D Only
R501	3069100970	Carbon Film 10 ohm 1/5 W J	1	
R502	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R503	3069101970	Carbon Film 100 ohm 1/5 W J	1	
		Not Used.		D Only
R504-R507	3069220970	Carbon Film 22 ohm 1/5 W J	4	
R539	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R541	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R671	3069471970	Carbon Film 470 ohm 1/5 W J	1	
RLY101	5528001750 ⚠	Relay, OSA-SS-212DM3	1	
RLY102	5528001780 ⚠	Relay, G5V-2 DC 12V	1	
TC101	3838001150	Trimmer, 10P	1	
TC102-TC104	3838001160	Trimmer, 20P	3	
VR101/VR102	3248010343	Semi Fixed Resistor 10 kohm	2	
VR103	3248020343	Semi Fixed Resistor 20 kohm	1	
VR104-VR107	3248010343	Semi Fixed Resistor 10 kohm	4	
VR108-VR110	3248020343	Semi Fixed Resistor 20 kohm	3	
VR111-VR113	3248020243	Semi Fixed Resistor 2 kohm	3	
VR114	3248010343	Semi Fixed Resistor 10 kohm	1	
X-101	3938131600	Resonator, CSB456F15	1	
X-102	3908101031	X-TAL, HC-49/U, 7.200 MHz	1	
		End of Ass'y P.C.B Main		
PCB6		**Ass'y P.C.B Input**		
46	4438107810	Jack, RCA 2P	1	
VR2	3208044410	Volume, Rear	1	
CN107	436203257132	Lead Ass'y 3P 250 mm, Shield		
R534/R535	3069203970	Carbon Film 20 kohm 1/5 W J	2	
		End of Ass'y P.C.B Input		
PCB3		**Ass'y P.C.B Volume**		
VR1	3208067910	Volume, Motor	1	
CP108	4428515805	Wafer 15P	1	
C601	3519104935	Ceramic Tubular 0.1 uF 50 V Z	1	
C602/C603	3479310121	Electrolytic SG 100 uF 10 V M	2	
C604/C605	3479210971	Electrolytic SA 1 uF 50 V M	2	
C606	3479268871	Electrolytic SA 0.68 uF 50 V M	1	
C607	3479233871	Electrolytic SA 0.33 uF 50 V M	1	
C608/C609	3519470935	Ceramic Tubular 47 pF 50 V J	2	
C610	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C611/C612	3679103120	Mylar 0.01 uF 100 V J	2	
C613	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	
C614	3679332120	Mylar 0.0033 uF 100 V J	1	
C615	3519103935	Ceramic Tubular 0.01 uF 50 V Z	1	
C616	3679332120	Mylar 0.0033 uF 100 V J	1	
C617	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C618-C620	3479347041	Electrolytic SG 47 uF 25 V M	3	
C621/C622	3519331935	Ceramic Tubular 330 pF 50 V J	2	
C623/C624	3519101935	Ceramic Tubular 100 pF 50 V J	2	
C625	3519681935	Ceramic Tubular 680 pF 50 V J	1	
C626	3679332120	Mylar 0.0033 uF 100 V J	1	
C627	3519681935	Ceramic Tubular 680 pF 50 V J	1	
C628	3679332120	Mylar 0.0033 uF 100 V J	1	
C629/C630	3519681935	Ceramic Tubular 680 pF 50 V J	2	
C631/C632	3519103935	Ceramic Tubular 0.01 uF 50 V Z	2	
C633	3519473935	Ceramic Tubular 0.047 uF 50 V Z	1	
C634/C635	3519181935	Ceramic Tubular 180 pF 50 V J	2	
C636/C637	3679333120	Mylar 0.033 uF 100 V J	2	
C638-C641	3479247971	Electrolytic SA 4.7 uF 50 V M	4	
D601	2258599104	Zener, UZ 5.6BSB	1	
IC601	2168022105	BA336	1	
IC602	2168206103	KIA4559S/KIA75559S	1	
IC603	2168007204	TA7291S	1	
IC604/IC605	2138009134	MC14051BCP	2	
IC606	2168206103	KIA4559S/KIA75559S	1	
Q601	2218207106	FET, 2SK117Y	1	
R601	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R602	3069242970	Carbon Film 2.4 kohm 1/5 W J	1	
R603	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R604	3069332970	Carbon Film 3.3 kohm 1/5 W J	1	
R605	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R606	3069334970	Carbon Film 330 kohm 1/5 W J	1	
R607	3069224970	Carbon Film 220 kohm 1/5 W J	1	
R608/R609	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R610	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R611	3069334970	Carbon Film 330 kohm 1/5 W J	1	
R612	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R613	3069274970	Carbon Film 270 kohm 1/5 W J	1	
R614	3069394970	Carbon Film 390 kohm 1/5 W J	1	
R615	3069334970	Carbon Film 330 kohm 1/5 W J	1	
R616	3069392970	Carbon Film 3.9 kohm 1/5 W J	1	
R617	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R618	3069100970	Carbon Film 10 ohm 1/5 W J	1	
R619	3069224970	Carbon Film 220 kohm 1/5 W J	1	
R620	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R621/R622	3069333970	Carbon Film 33 kohm 1/5 W J	2	
R623	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R624/R625	3069184970	Carbon Film 180 kohm 1/5 W J	2	
R626	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R627	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R628	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R629/R630	3069473970	Carbon Film 47 kohm 1/5 W J	2	
R631	3069203970	Carbon Film 20 kohm 1/5 W J	1	
R632	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R633	3069203970	Carbon Film 20 kohm 1/5 W J	1	
R634/R635	3069223970	Carbon Film 22 kohm 1/5 W J	2	
R636	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R637	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R638	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R639	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R640/R641	3069123970	Carbon Film 12 kohm 1/5 W J	2	
R642/R643	3069473970	Carbon Film 47 kohm 1/5 W J	2	
R644	3069273970	Carbon Film 27 kohm 1/5 W J	1	
R645	3069913970	Carbon Film 91 kohm 1/5 W J	1	
R646	3069273970	Carbon Film 27 kohm 1/5 W J	1	
R647	3069913970	Carbon Film 91 kohm 1/5 W J	1	
R648	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R649	3069823970	Carbon Film 82 kohm 1/5 W J	1	
R650	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R651	3069823970	Carbon Film 82 kohm 1/5 W J	1	
R652	3069913970	Carbon Film 91 kohm 1/5 W J	1	
R653	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R654	3069913970	Carbon Film 91 kohm 1/5 W J	1	
R655	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R656	3069333970	Carbon Film 33 kohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R657/R658	3069101970	Carbon Film 100 ohm 1/5 W J	2	
R659/R660	3069224970	Carbon Film 220 kohm 1/5 W J	2	
R661	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R662	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R663	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R664/R665	3069684970	Carbon Film 680 kohm 1/5 W J	2	
R666	3069335970	Carbon Film 3.3 Mohm 1/5 W J	1	
R667/R668	3069362970	Carbon Film 3.6 kohm 1/5 W J	2	
R669/R670	3069684970	Carbon Film 680 kohm 1/5 W J	2	
		End of Ass'y P.C.B Volume		
PCB1		**Ass'y P.C.B Front**		
SW1	4658003710	Switch, Tact	37	
22	6042002310	Guide, FL	1	
	152622101013	Wire, AWG #22 1P 100 mm, Black	1	
	152622101413	Wire, AWG #22 1P 140 mm, Black	1	
	152622104858	Lug Wire, AWG #22 1P 480 mm Black	1	
C701	3479310121	Electrolytic SG 100 uF 10 V M	1	
C703	3449347314	CAP, FMOH473ZTP 16	1	
C704/C705	3479247971	Electrolytic SA 4.7 uF 50 V M	2	
C711/C712	3679682120	Mylar 0.0068 uF 100 V J	2	
C713	3479210071	Electrolytic SA 10 uF 50 V M	1	
C714/C715	3679822120	Mylar 0.0082 uF 100 V J	2	
C716	3479210071	Electrolytic SA 10 uF 50 V M	1	
C717/C718	3679272120	Mylar 0.0027 pF 100 V J	2	
C719	3479210071	Electrolytic SA 10 uF 50 V M	1	
C720/C721	3519681935	Ceramic Tubular 680 pF 50 V J	2	
C722	3479210071	Electrolytic SA 10 uF 50 V M	1	
C723/C724	3519181935	Ceramic Tubular 180 pF 50 V J	2	
C725	3479210071	Electrolytic SA 10 uF 50 V M	1	
C761/C762	3479310121	Electrolytic SG 100 uF 10 V M	2	
C763	3519223935	Ceramic Tubular 0.022 uF 25 V Z	1	
C764	3479310121	Electrolytic SG 100 uF 10 V M	1	
C765	3479210971	Electrolytic SA 1 uF 50 V M	1	
C766	3479310121	Electrolytic SG 100 uF 10 V M	1	
C771-C774	3519104935	Ceramic Tubular 0.1 uF 50 V Z	4	
C775	3479233971	Electrolytic SA 3.3 uF 50 V M	1	
C776/C777	3479210071	Electrolytic SA 10 uF 50 V M	2	
C778	3479247871	Electrolytic SA 0.47 uF 50 V M	1	
CN701	436213263332	Lead Ass'y 13P 250 mm	1	
CN704	436207263332	Lead Ass'y 7P 260 mm	1	
CN705	4428508210	Wafer 2P	1	
CP702	4428526290	Wafer 17P	1	
CP703	4428526280	Wafer 16P	1	
D701-D749	2058322101	1N4148, Switching	10	
D761-D771	2058322101	1N4148, Switching	11	
D813	2058322101	1N4148, Switching	1	
DZ702/DZ703	2258599130	Zener, UZ 7.5BSC	2	
DZ704	2258599105	Zener, UZ 6.2BSB	1	
DZ705/DZ706	2258599123	Zener, UZ 8.2BSB	2	
IC701	2138322169	CPU, CXP82432-105Q	1	
IC702	2168206103	KIA4559S/KIA75559S	1	
IC703	2168000113	KA324	1	
L701	2648610284	Coil, Inductor, 1mH 1 mH	1	
LED701-708	2308220310	LED, SLR 54GG3	9	
Q701-Q708	2208222106	DTC114YS	9	
Q709	2208606114	MPSA06Y, NPN	1	
Q710	2208222106	DTC114YS	1	
Q711	2208606112	KTD1302B, NPN Silicon	1	
Q712/Q713	2208622108	DTC114TS	2	
Q714	2208222105	DTA114YS, PNP Silicon	1	
R701/R702	3069391970	Carbon Film 390 ohm 1/5 W J	2	
R703-R708	3069102970	Carbon Film 1 kohm 1/5 W J	5	
R709	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R710	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R711	3069122970	Carbon Film 1.2 kohm 1/5 W J	1	
R712	3069152970	Carbon Film 1.5 kohm 1/5 W J	1	
R713	3069182970	Carbon Film 1.8 kohm 1/5 W J	1	
R714	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R715	3069272970	Carbon Film 2.7 kohm 1/5 W J	1	
R716	3069432970	Carbon Film 4.3 kohm 1/5 W J	1	
R717	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
R718	3069752970	Carbon Film 7.5 kohm 1/5 W J	1	
R719	3069153970	Carbon Film 15 kohm 1/5 W J	1	
R720	3069273970	Carbon Film 27 kohm 1/5 W J	1	
R721	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R722	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R723	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R724	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R725	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R726	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R727	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R728	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R729	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R730	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R731	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R732	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R733	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R734	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R735	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R736	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R742	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R743-R745	3069104970	Carbon Film 100 kohm 1/5 W J	3	
R746	3069690970	Carbon Film 68 ohm 1/5 W J	1	
R747	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R748	3069684970	Carbon Film 680 kohm 1/5 W J	1	
R749	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R750	3069124970	Carbon Film 120 kohm 1/5 W J	1	
R751	3069684970	Carbon Film 680 kohm 1/5 W J	1	
R752	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
R753	3069151970	Carbon Film 150 ohm 1/5 W J	1	
R754	3069225970	Carbon Film 2.2 Mohm 1/5 W J	1	
R755	3069563970	Carbon Film 56 kohm 1/5 W J	1	
R756	3069564970	Carbon Film 560 kohm 1/5 W J	1	
R757	3069225970	Carbon Film 2.2 Mohm 1/5 W J	1	
R758	3069151970	Carbon Film 150 ohm 1/5 W J	1	
R759	3069562970	Carbon Film 5.6 kohm 1/5 W J	1	
R760	3069224970	Carbon Film 220 kohm 1/5 W J	1	
R761	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R762	3069683970	Carbon Film 68 kohm 1/5 W J	1	
R763	3069394970	Carbon Film 390 kohm 1/5 W J	1	
R764	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R765	3069151970	Carbon Film 150 ohm 1/5 W J	1	
R766	3069224970	Carbon Film 220 kohm 1/5 W J	1	
R767	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R768	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R769	3069394970	Carbon Film 390 kohm 1/5 W J	1	
R770	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R771	3069151970	Carbon Film 150 ohm 1/5 W J	1	
R772	3069224970	Carbon Film 220 kohm 1/5 W J	1	
R773	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R774	3069124970	Carbon Film 120 kohm 1/5 W J	1	
R775	3069474970	Carbon Film 470 kohm 1/5 W J	1	
R776	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R777	3069151970	Carbon Film 150 ohm 1/5 W J	1	
R778/R780	3069224970	Carbon Film 220 kohm 1/5 W J	2	
R781	3069274970	Carbon Film 270 kohm 1/5 W J	1	
R783	3069104970	Carbon Film 100 kohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R790	3069222970	Carbon Film 2.2 kohm 1/5 W J	1	
R791	3069242970	Carbon Film 2.4 ohm 1/5 W J	1	
R792	3069271970	Carbon Film 270 ohm 1/5 W J	1	
R793	3069100970	Carbon Film 10 ohm 1/5 W J	1	
R795	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R796	3069470970	Carbon Film 47 ohm 1/5 W J	1	
R797	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R798	3069104970	Carbon Film 100 koh 1/5 W J	1	
R799	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R800	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R899	3069101970	Carbon Film 100 ohm 1/5 W J	1	
R900	3069471970	Carbon Film 470 ohm 1/5 W J	1	
SEN701	2408004005	Sensor, RPM-638CBR-L	1	
X701	3938131750	Resonator, CST10.00MTW	1	
		End of Ass'y P.C.B Front		
PCB2		**Ass'y P.C.B CD**		
51	7505206110	Heatsink, Regulator TR	1	
60	4438113410	Jack, RCA 1P	1	KS Only
C801	3519103935	Carbon Film 0.01 uF 50 V Z	1	
C802	3479310121	Electrolytic SG 100 uF 10 V M	1	
C803	3679222120	Mylar 0.0022 uF 100 V J	1	
C804	3679333120	Mylar 0.033 uF 100 V J	1	
C805/C806	3479310121	Electrolytic SG 100 uF 10 V M	2	
C807	3519103935	Ceramic Tublar 0.01 uF 50 V Z	1	
C808	3679333120	Mylar 0.033 uF 100 V J	1	
C809	3519472935	Ceramic Tublar 4700 pF 50 V Z	1	
C810	3679222120	Mylar 0.0022 uF 100 V J	1	
C811	3519561935	Ceramic Tublar 560 pF 50 V J	1	
C812	3479310121	Electrolytic SG 100 uF 50 V M	1	
C813	3479247871	Electrolytic SA 0.47 uF 50 V M	1	
C814	3679103120	Mylar 0.01 uF 100 V J	1	
C815	3679104120	Mylar 0.1 uF 100 V J	1	
C816	3679473120	Mylar 0.047 uF 100 V J	1	
C817	3479233971	Electrolytic SA 3.3 uF 50 V M	1	
C818	3479310121	Electrolytic SG 100 uF 10 V M	1	
C819	3479233971	Electrolytic SA 3.3 uF 50 V M	1	
C820	3679104120	Mylar 0.1 uF 100 V J	1	
C821	3679153120	Mylar 0.015 uF 100 V J	1	
C822	3679103120	Mylar 0.01 uF 100 V J	1	
C823	3519101935	Ceramic Tublar 100 pF 50 V J	1	
C824	3519471935	Ceramic Tublar 470 pF 50 V J	1	
C825/C826	3479322141	Electrolytic SG 220 uF 25 V M	2	
C827	3479210971	Electrolytic SA 1 uF 50 V M	1	
C828	3479347041	Electrolytic SG 47 uF 25 V M	1	
C829	3479210971	Electrolytic SA 1 uF 50 V M	1	
C830/C831	3519103935	Ceramic Tublar 0.01 uF 50 V Z	2	
C832	3479247971	Electrolytic SA 4.7 uF 50 V M	1	
C833	3679472120	Mylar 0.0047 uF 100 V J	1	
C834	3479347041	Electrolytic SG 47 uF 25 V M	1	
C835	3519103935	Ceramic Tublar 0.01 uF 50 V Z	1	
C836	3519473935	Ceramic Tublar 0.047 uF 50 V Z	1	
C837	3479347041	Electrolytic SG 47 uF 25 V M	1	
C838	3479247871	Electrolytic SA 0.47 uF 50 V M	1	
C839	3679333120	Mylar 0.033 uF 100 V J	1	
C841	3479347041	Electrolytic SG 47 uF 25 V M	1	
C842	3519560935	Ceramic Tublar 56 pF 50 V J	1	
C843/C844	3529470210	Ceramic Disc (CH) 47 pF 50 V J	2	
C845	3479347041	Electrolytic SG 47 uF 25 V M	1	
C846/C847	3519473935	Ceramic Tublar 0.047 uF 50 V Z	2	
C848	3479347041	Electrolytic SG 47 uF 25 V M	1	
C849 L/R	3519221935	Ceramic Tublar 220 pF 50 V J	2	
C850 L/R	3519101935	Ceramic Tublar 100 pF 50 V J	2	
C851 L/R	3519101935	Ceramic Tublar 100 pF 50 V J	2	
C852 L/R	3679222120	Mylar 0.0022 uF 100 V J	2	
C853 L/R	3519221935	Ceramic Tublar 220 pF 50 V J	2	
C854 L/R	3479210071	Electrolytic SA 10 uF 50 V M	2	
C855 L/R	3679222120	Mylar 0.0022 uF 100 V J	2	
C856 L/R	3479310141	Electrolytic SG 100 uF 25 V M	2	
C857 L/R	3479310141	Electrolytic SG 100 uF 25 V M	2	
C858	3479210971	Electrolytic SA 1 uF 50 V M	1	
C859	3479310121	Electrolytic SG 100 uF 10 V M	1	
C860	3479310121	Electrolytic SG 100 uF 10 V M	1	
C861/C862	3519103935	Ceramic Tublar 0.01 uF 50 V Z	2	
C863	3479210971	Electrolytic SA 1 uF 50 V M	1	
C864	3519103935	Ceramic Tublar 0.01 uF 50 V Z	1	
C865	3479210071	Electrolytic SA 10 uF 50 V M	1	
C866/C867	3529330210	Ceramic Disc (CH) 33 pF 50 V J	2	
C868	3519103935	Ceramic Tublar 0.01 uF 50 V Z	1	
C869	3479347041	Electrolytic SG 47 uF 25 V M	1	
C870	3479347121	Electrolytic SG 470 uF 10 V M	1	
C871/C872	3529330210	Ceramic Disc (CH) 33 pF 50 V J	2	
CN807	4358508202	Lead Wire 8P, to Laser	1	
CN807	4358508201	Lead Wire 8P, to Photo	1	
CP801	4428516610	Wafer 7P	1	
CP802	4428516710	Wafer 8P	1	
CP803	4428516710	Wafer 8P	1	
CP804	4428516410	Wafer 5P	1	
CP805	4428516310	Wafer 4P	1	
CP806	4428526290	Wafer 17P	1	
D801-D804	2058322101	1N4148,Switching	4	
D811/D812	2058322101	1N4148,Switching	2	KS Only
IC801	2138022111	CXA1081S	1	
IC802	2138022112	CXA1082BS	1	
IC803	2138022110	CXD1167Q	1	
IC804	2138099120	SM5871AP	1	
IC805	2168000114	MC4558	1	
IC806L	2168206106	KIA6259S	1	
IC806R	2168206106	KIA6259S	1	
IC807	21686901101	KA7805,Regulator	1	
IC808	2168600105	KA7905,Regulator	1	
IC809	2138017137	LC787OE	1	KS Only
IC810	2138400148	HYS3C464LS-80	1	KS Only
Q801	2208206105	KTA1015Y/BKTA1266,NPN Silicon	1	
Q802	2208206113	MPSA56,PNP Silicon	1	
Q803	2208606114	MPSAO6Y,NPN	1	
Q804	2208206113	MPSA56,PNP Silicon	1	
Q805	2208606114	MPSA06Y,NPN	1	
Q806	2208206113	MPSA56,PNP Silicon	1	
Q807	2208606114	MPSA06Y,NPN	1	
Q808	2208206113	MPSA56,PNP Silicon	1	
Q809	2208606114	MPSA06Y,NPN	1	
Q810	2208206113	MPSA56,PNP Silicon	1	
Q811	22080606114	MPSA06Y,NPN	1	
Q812	2208622109	DTC144E	1	
Q813	2208622109	DTC144E	1	
Q814	2208222106	DTC114YS	1	
Q815	2208606104	KTC1815Y/BKTC3198,NPN Silicon	1	
Q830-Q833	2208606104	KTC1815Y/BKTC3198,NPN Silicon	4	KS Only
Q834	2208622108	DTC114TS	1	KS Only
Q841	2208206113	MPSA56,PNP Silicon	1	
R801	3069243970	Carbon Film 24 kohm 1/5 W J	1	
R802/R803	3069101970	Carbon Film 100 ohm 1/5 W J	2	
R804	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R805	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R806/R807	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R808	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R809	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	

Ref. No.	Part No.	Description	Q'ty	Version
R810	3069123970	Carbon Film 12 kohm 1/5 W J	1	
R811	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R812/R813	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R814	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R815	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R816	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R817	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R818/R819	3069823970	Carbon Film 82 kohm 1/5 W J	2	
R820	3069153970	Carbon Film 15 kohm 1/5 W J	1	
R821	3069124970	Carbon Film 120 kohm 1/5 W J	1	
R822	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R823	3069474970	Carbon Film 470 kohm 1/5 W J	1	
R824	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
R825	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R826-R830	3069104970	Carbon Film 100 kohm 1/5 W J	5	
R831	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R832	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R833	3069101970	Carbon Film 100 Kohm 1/5 W J	1	
R834	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R835	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R836	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R837	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R838	3069124970	Carbon Film 120 kohm 1/5 W J	1	
R839	3069362970	Carbon Film 3.6 kohm 1/5 W J	1	
R840	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R841	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R842	3069105970	Carbon Film 1 Mohm 1/5 W J	1	
R843	3069223970	Carbon Film 22 kohm 1/5 W J	1	
R844/R845	3069104970	Carbon Film 100 kohm 1/5 W J	2	
R846	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R847-R849	3069681970	Carbon Film 680 ohm 1/5 W J	3	
R850	3069103970	Carbon Film 10 kohm 1/5 W J	1	
R851	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R852	3069221970	Carbon Film 220 ohm 1/5 W J	1	
R853	3069109970	Carbon Film 10 ohm 1/5 W J	1	
R854	3069479970	Carbon Film 4.7 ohm 1/5 W J	1	
R855/R856	3069102970	Carbon 1 kohm 1/5 W J	2	
R857	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R858/R859	3069102970	Carbon Film 1 kohm 1/5 W J	2	
R860 L/R	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R861 L/R	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R862 L/R	3069752970	Carbon Film 7.5 kohm 1/5 W J	2	
R863 L/R	3069752970	Carbon Film 7.5 kohm 1/5 W J	2	
R864 L/R	3069243970	Carbon Film 24 kohm 1/5 W J	2	
R865 L/R	3069243970	Carbon Film 24 kohm 1/5 W J	2	
R866 L/R	3069682970	Carbon Film 6.8 kohm 1/5 W J	2	
R867 L/R	3069682970	Carbon Film 6.8 kohm 1/5 W J	2	
R868 L/R	3069682970	Carbon Film 6.8 kohm 1/5 W J	2	
R869 L/R	3069104970	Carbon Film 100 kohm 1/5 W J	2	
R870 L/R	3069102970	Carbon Film 1 kohm 1/5 W J	2	
R871 L/R	3069101970	Carbon Film 100 kohm 1/5 W J	2	
R872 L/R	3069101970	Carbon Film 100 ohm 1/5 W J	2	
R873 L/R	3069471970	Carbon Film 470 ohm 1/5 W J	2	
R874/R875	3069102970	Carbon Film 1 kohm 1/5 W J	2	
R876/R877	3069103970	Carbon Film 10 kohm 1/5 W J	2	
R878	3069104970	Carbon Film 100 kohm 1/5 W J	1	
R879	3069473970	Carbon Film 47 kohm 1/5 W J	1	
R880	3069331970	Carbon Film 330 ohm 1/5 W J	1	
R881	3069331970	Carbon Film 330 ohm 1/5 W J	1	KS Only
R882	3069132970	Carbon Film 1.3 kohm 1/5 W J	1	KS Only
R883	3069122970	Carbon Film 1.2 kohm 1/5 W J	1	KS Only
R884	3069132970	Carbon Film 1.3 kohm 1/5 W J	1	KS Only
R885/R886	3069302970	Carbon Film 3 kohm 1/5 W J	1	KS Only
R887	3069202970	Carbon Film 2 kohm 1/5 W J	2	KS Only
R888	3069221970	Carbon Film 220 ohm 1/5 W J	1	KS Only
R889	3069750970	Carbon Film 75 ohm 1/5 W J	1	KS Only
R890/R891	3069103970	Carbon Film 10 kohm 1/5 W J	1	KS Only
R892	3069473970	Carbon Film 47 kohm 1/5 W J	2	KS Only
R893	3069822970	Carbon Film 8.2 kohm 1/5 W J	1	
R894	3069333970	Carbon Film 33 kohm 1/5 W J	1	
R897	3069102970	Carbon Film 1 kohm 1/5 W J	1	
R898	3069472970	Carbon Film 4.7 kohm 1/5 W J	1	
XT801	3938101500	Resonator, 16.9344MHz	1	
XT802	3938201950	Resonator, 14.3198MHz	1	KS Only
VR801	3248020343	Semi Fixed Resistor 20 kohm	1	
VR802	3248050343	Semi Fixed Resistor 50 kohm	1	
VR803	3248010243	Semi Fixed Resistor 1 kohm	1	
		End of Ass'y P.C.B CD		
PCB7		**Ass'y P.C.B Trans**		
CN101	4360107403321	Lead Ass'y 7P 400 mm	1	
		End of Ass'y P.C.B Trans		
PCB4		**Ass'y P.C.B Power**		
F102	5508202230	⚠Fuse, NB 1.5 A 250 V	1	KS
	5508202521	⚠Fuse, NB 2.5 A 125 V	1	A
	5508302435	⚠Fuse, TL 2 A 250 V	1	B Only
	5508302035	⚠Fuse, TL 1 A 250 V	1	C,D,E
TPA	4228001410	Pin, Solder	1	
TPB	4338001410	Pin, Solder	1	
C872	3449347314	Ceramic Disc 0.047 uF 400 V	1	
W02	4359552020	Wire, 1P 200mm MXH40113-2, Black	1	
W04	4359552120	Wire, 1P 200mm MXH40113-2, Blown	1	
W01	4359552220	Wire, 1P 200mm MXH40113-2, Red	1	
W03	4359552420	Wire, 1P 200mm MXH40113-2, Yellow	1	
		End of Ass'y P.C.B Power		
PCB9		**Ass'y P.C.B Voltage Selector**		B Only
F103	5508302035	⚠Fuse, TL 1 A 250 V		
		End of Ass'y P.C.B Voltage Selector	1	

NOTES:

A: 120 V, 60 Hz American/Canadian version
B: 120/220 V, 50/60 Hz Multi-voltage version (switchable)
D: 230 V, 50 Hz German/General Europe version
E: 240 V, 50 Hz UK/Austalian version
C, F and G: 220 V, 50 Hz area version
KS: Krean version

PRODUCT SAFETY NOTICE

Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

IC PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Version
FE101	3928801890	Front-end, FM Tuner, FE407-G60	1	D Only
FE101	3928801930	Front-end, FM Tuner, FE306-A15	1	
IC101	2178317124	STK4142 II, Hybrid	1	
IC102	2168206106	KIA6259S	1	
IC103/IC104	2168206104	KIA4559S/KIA75559S	2	
IC105	2168010102	MN3101	1	
IC106	2168002113	KA22712, Dolby B	1	
IC107	2168206104	KIA4559S/KIA75559S	1	
IC108	2138009115	MC14094	1	
IC109	2168010103	MN3007	1	
IC110	2138001114	GD4502B	1	
IC111	2168206106	KIA6259S	1	
IC112	2168022124	CXA1198AP	1	
IC113	2138001114	GD4052B	1	
IC114	2168417114	LA1851N	1	
IC115	2168206104	KIA4559S/KIA75559S	1	
IC116	2138017112	LM7001	1	
IC601	2168022105	BA336	1	
IC602	2168206103	KIA4559S/KIA75559S	1	
IC603	2168007204	TA7291S	1	
IC604/IC605	2138009134	MC14051BCP	2	
IC606	2168206103	KIA4559S/KIA75559S	1	
IC701	2138322169	CPU, CXP82432-105Q	1	
IC702	2168206103	KIA4559S/KIA75559S	1	
IC703	2168000113	KA324	1	
IC801	2138022111	CXA1081S	1	
IC802	2138022112	CXA1082BS	1	
IC803	2138022110	CXD1167Q	1	
IC804	2138099120	SM5871AP	1	
IC805	2168000114	MC4558	1	
IC806L	2168206106	KIA6259S	1	
IC806R	2168206106	KIA6259S	1	
IC807	2168601101	KA7805, Regulator	1	
IC808	2168600105	KA7905, Regulator	1	
IC809	2138017137	LC7870E	1	KS Only
IC810	2138400148	HYS3C464LS-80	1	KS Only

TRANSISTOR PARTS LIST

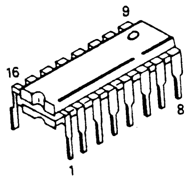
Ref. No.	Part No.	Description	Q'ty	Version
Q101/Q102	2228406117	KTC2236AY	2	
Q103/Q104	2208622108	DTC114TS	2	
Q105	2208606112	KTD1302B, NPN Silicon	1	
Q106	2228106107	BKTA965Y/KTA1023, PNP Silicon	1	
Q107	2208606112	KTD1302B, NPN Silicon	1	
Q108-Q110	2208622108	DTC114TS	3	
Q111	2208622105	DTA114YS, PNP Silicon	1	
Q112/Q113	2208606112	KTD1302B, NPN Silicon	2	
Q114	2208622106	DTC114YS	1	
Q115	2208622105	DTA114YS, PNP Silicon	1	
Q116/Q117	2208622108	DTC114TS	2	
Q118-Q120	2208406103	KTC1923Y	3	
Q121	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q122	2208622108	DTC114TS	1	
Q123	2208606112	KTD1302B, NPN Silicon	1	
Q124	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q125	2208622108	DTC114TS	1	
Q126	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q127	2208606112	KTD1302B, NPN Silicon	1	
Q128	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q129	2208206105	KTA1015Y/BKTA1266, NPN Silicon	1	
Q130	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q131	2208622106	DTC114YS	1	
Q132/Q133	2208606112	KTD1302B, NPN Silicon	2	
Q134	2208622106	DTC114YS	1	
Q136	2208206113	MPSA56, PNP Silicon	1	
Q137/Q138	2208622106	DTC114YS	2	
Q139	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q140	2208622108	DTC114TS	1	
Q141	2208206113	MPSA56, PNP Silicon	1	
Q142	2208622108	DTC114TS	1	
Q143	2208206113	MPSA56, PNP Silicon	1	
Q144	2208622106	DTC114YS	1	
Q145	2208622105	DTA114YS, PNP Silicon	1	
Q147	2208606112	KTD1302B, NPN Silicon	1	
Q148	2208622106	DTC114YS	1	
Q149	2208606112	KTD1302B, NPN Silicon	1	
Q150/Q151	2208622105	DTA114YS, PNP Silicon	2	D Only
Q152/Q153	2208206105	KTA1015Y/BKTA1266, NPN Silicon	2	
Q155	2028106109	2SB1367Y/KTB1367Y, PNP	1	
Q157	2208622105	DTA114YS, PNP Silicon	1	
Q158	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q159	2208606114	MPSA06Y, NPN	1	
Q160	2208622106	DTC114YS	1	
Q161/Q162	2208622105	DTA114YS, PNP Silicon	2	
Q163/Q164	2208606104	KTC1815Y/BKTC3198, NPN Silicon	2	D Only
Q165	2228406120	BKTC2235Y/KTC1027, NPN Silicon	1	
Q166	2218211100	FET, K168 DTZ	1	
Q167	2208406103	KTC1923Y	1	
Q168-Q170	2208606104	KTC1815Y/BKTC3198, NPN Silicon	3	
Q172	2208606108	KTC2240BL/BKTC3200, NPN Silicon	1	
Q173	2208206105	KTA1015Y/BKTA1266, NPN Silicon	1	
Q174-Q176	2208606104	KTC1815Y/BKTC3198, NPN Silicon	3	D Only
Q177	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q178	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	D Only
Q504	2028106109	B1367	1	

Ref. No.	Part No.	Description	Q'ty	Version
Q505	2208622108	DTC114TS	1	
Q601	2218207106	FET, 2SK117Y	1	
Q701-Q708	2208622106	DTC114YS	9	
Q709	2208606114	MPSA06Y, NPN	1	
Q710	2208622106	DTC114YS	1	
Q711	2208606112	KTD1302B, NPN Silicon	1	
Q712/Q713	2208622108	DTC114TS	2	
Q714	2208622105	DTA114YS, PNP Silicon	1	
Q801	2208206105	KTA1015Y/BKTA1266, NPN Silicon	1	
Q802	2208206113	MPSA56, PNP Silicon	1	
Q803	2208606114	MPSA06Y, NPN	1	
Q804	2208206113	MPSA56, PNP Silicon	1	
Q805	2208606114	MPSA06Y, NPN	1	
Q806	2208206113	MPSA56, PNP Silicon	1	
Q807	2208606114	MPSA06Y, NPN	1	
Q808	2208206113	MPSA56, PNP Silicon	1	
Q809	2208606114	MPSA06Y, NPN	1	
Q810	2208206113	MPSA56, PNP Silicon	1	
Q811	2208606114	MPSA06Y, NPN	1	
Q812	2208622109	DTC144E	1	
Q813	2208622109	DTC144E	1	
Q814	2208622106	DTC114YS	1	
Q815	2208606104	KTC1815Y/BKTC3198, NPN Silicon	1	
Q830-Q833	2208606104	KTC1815Y/BKTC3198, NPN Silicon	4	KS Only
Q834	2208622108	DTC114TS	1	KS Only
Q841	2208206113	MPSA56, PNP Silicon	1	

IC, TR LEAD IDENTIFICATION & INTERNAL DIAGRAM

GD4052B: IC110, IC113 (Dual 4-Channel analog multiplexer/demultiplexer)

Package Outline

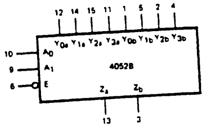


TRUTH TABLE

INPUTS			CHANNELS			
E	A_1	A_0	Y_0-Z	Y_1-Z	Y_2-Z	Y_3-Z
L	L	L	ON	OFF	OFF	OFF
L	L	H	OFF	ON	OFF	OFF
L	H	L	OFF	OFF	ON	OFF
L	H	H	OFF	OFF	OFF	ON
H	X	X	OFF	OFF	OFF	OFF

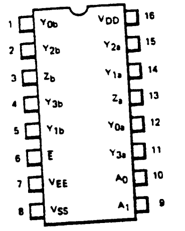
L=LOW Level H=HIGH Level, X=Don't care

LOGIC SYMBOL


12
14
15
11
1
5
2
4
Y_{0a}
Y_{1a}
Y_{2a}
Y_{3a}
Y_{0b}
Y_{1b}
Y_{2b}
Y_{3b}
10
9
6
A_0
A_1
E
4052B
Z_a
Z_b
13
3

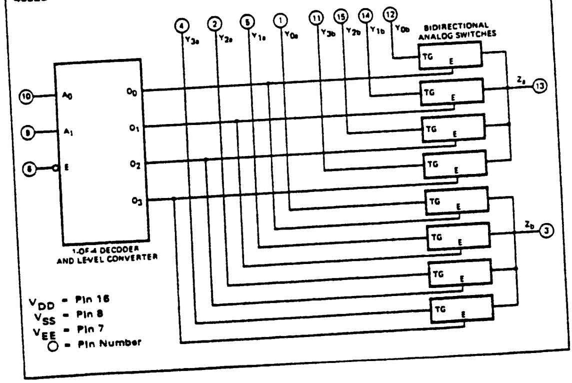
V_{DD} = PIN 16
V_{SS} = PIN 8
V_{EE} = PIN 7

CONNECTION DIAGRAM
DIP (TOP VIEW)


1
2
3
4
5
6
7
8
Y_{0b}
Y_{2b}
Z_b
Y_{3b}
Y_{1b}
E
V_{EE}
V_{SS}
V_{DD}
Y_{2a}
Y_{1a}
Z_a
Y_{0a}
Y_{3a}
A_0
A_1
16
15
14
13
12
11
10
9

NOTE:
The SO Package has the same pinouts (Connection Diagram) as the Dual In-line Package.

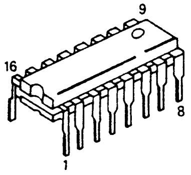
4052B FUNCTIONAL LOGIC DIAGRAM


4
2
5
1
11
15
14
12
Y_{3a}
Y_{2a}
Y_{1a}
Y_{0a}
Y_{3b}
Y_{2b}
Y_{1b}
Y_{0b}
BIDIRECTIONAL ANALOG SWITCHES
10
9
6
A_0
A_1
E
O_0
O_1
O_2
O_3
1-OF-4 DECODER AND LEVEL CONVERTER
TG
E
Z_a
13
Z_b
3

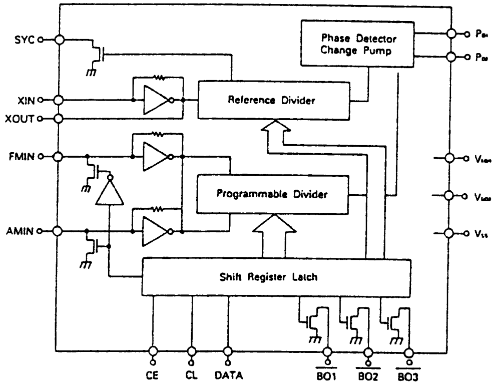
V_{DD} = Pin 16
V_{SS} = Pin 8
V_{EE} = Pin 7
○ = Pin Number

LM7001:IC116(PLL)

Package Outline



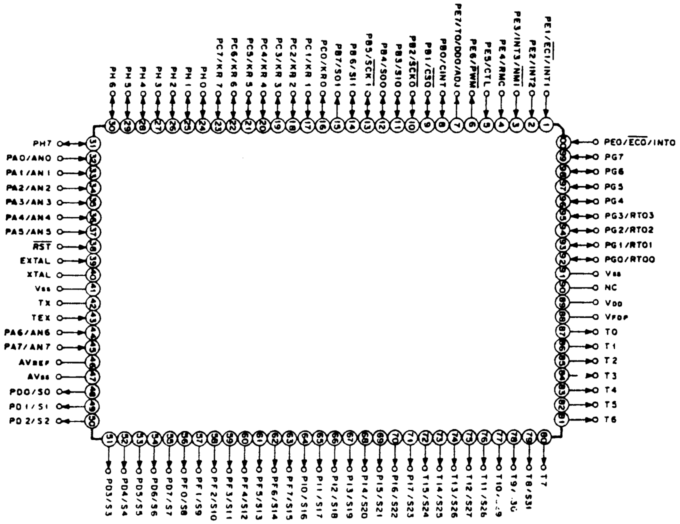
Block Diagram



SYC
XIN
XOUT
FMIN
AMIN
Phase Detector Change Pump
Reference Divider
Programmable Divider
Shift Register Latch
CE
CL
DATA
BO1
BO2
BO3

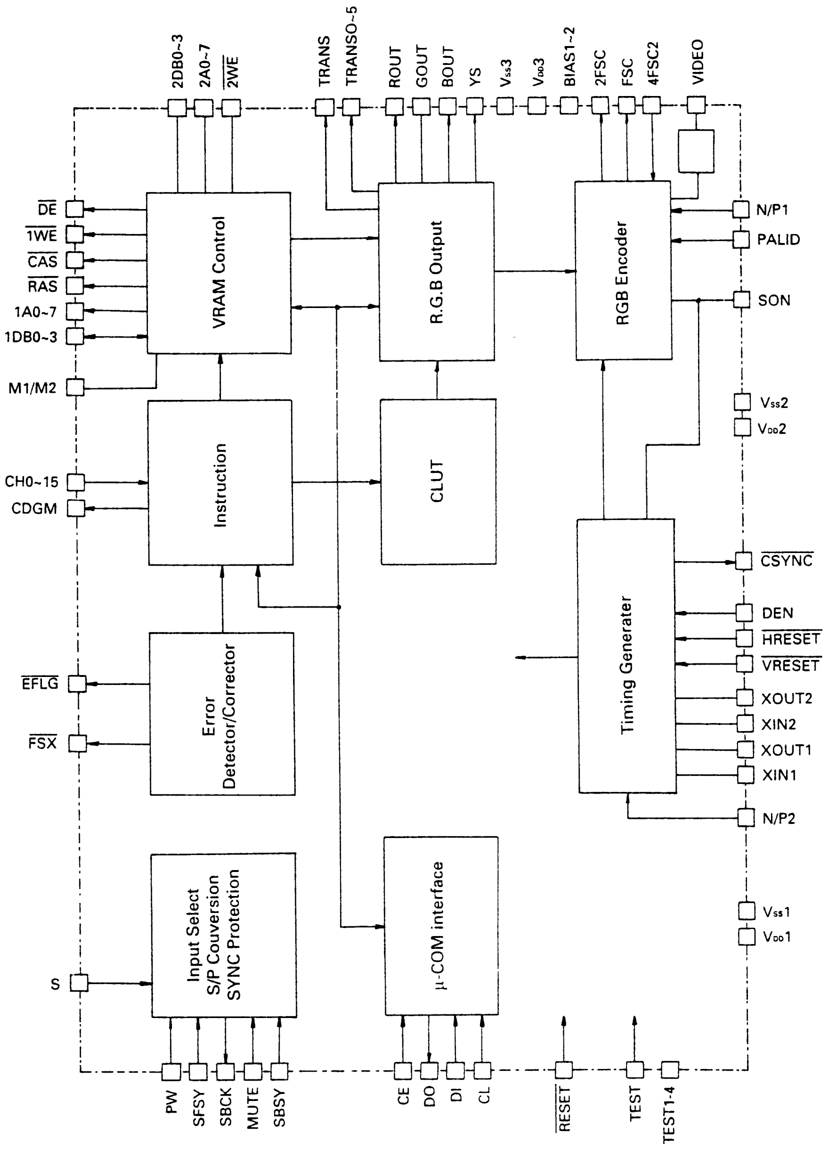
LC7870E: IC 809 (Compact Disc Graphic Signal Control)

Pin Alignment and External Diagram



PE1/ECI/INT1
PE2/INT2
PE3/INT3/NMI
PE4/RMC
PE5/CTL
PE6/PWM
PE7/TO/DOO/ADJ
PB0/CINT
PB1/CS0
PB2/SCK0
PB3/SI0
PB4/SO0
PB5/SCK1
PB6/SI1
PB7/SO1
PC0/KR0
PC1/KR1
PC2/KR2
PC3/KR3
PC4/KR4
PC5/KR5
PC6/KR6
PC7/KR7
PH0
PH1
PH2
PH3
PH4
PH5
PH6
PH7
PA0/AN0
PA1/AN1
PA2/AN2
PA3/AN3
PA4/AN4
PA5/AN5
RST
EXTAL
XTAL
Vss
TX
TEX
PA6/AN6
PA7/AN7
AVREF
AVss
PD0/S0
PD1/S1
PD2/S2
PD3/S3
PD4/S4
PD5/S5
PD6/S6
PD7/S7
PF0/S8
PF1/S9
PF2/S10
PF3/S11
PF4/S12
PF5/S13
PF6/S14
PF7/S15
PI0/S16
PI1/S17
PI2/S18
PI3/S19
PI4/S20
PI5/S21
PI6/S22
PI7/S23
T15/S24
T14/S25
T13/S26
T12/S27
T11/S26
T10/S29
T9/S30
T8/S31
T7
T6
T5
T4
T3
T2
T1
T0
VFDP
VDD
NC
Vss
PG0/RTO0
PG1/RTO1
PG2/RTO2
PG3/RTO3
PG4
PG5
PG6
PG7
PE0/ECO/INT0

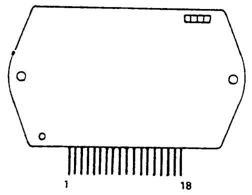
Block Diagram



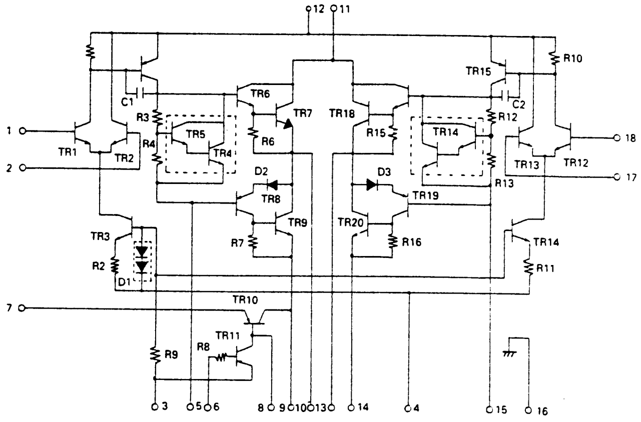
2DB0~3
2A0~7
2WE
TRANS
TRANSO~5
ROUT
GOUT
BOUT
YS
Vss3
VDD3
BIAS1~2
2FSC
FSC
4FSC2
VIDEO
DE
1WE
CAS
RAS
1A0~7
1DB0~3
M1/M2
CH0~15
CDGM
EFLG
FSX
S
VRAM Control
R.G.B Output
RGB Encoder
Instruction
CLUT
Error Detector/Corrector
Timing Generator
Input Select
S/P Couversion
SYNC Protection
μ-COM interface
N/P1
PALID
SON
Vss2
VDD2
CSYNC
DEN
HRESET
VRESET
XOUT2
XIN2
XOUT1
XIN1
N/P2
Vss1
VDD1
PW
SFSY
SBCK
MUTE
SBSY
CE
DO
DI
CL
RESET
TEST
TEST1-4

STK4142II: IC101 (2 Channel hybrid amplifier, both channel 25W)

Package Outline

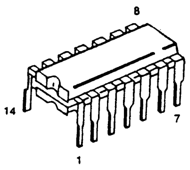


Internal Schematic Diagram

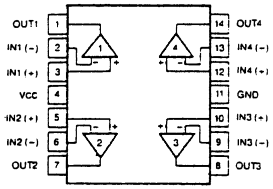

12
11
R10
TR15
C1
C2
TR6
R3
TR7
TR18
R12
R4
TR5
R6
R15
TR14
1
TR4
18
TR1
TR2
TR13
TR12
2
D2
D3
17
R13
TR8
TR19
TR9
TR20
TR3
R7
R16
TR14
R2
R11
D1
7
TR10
TR11
R9
R8
3
5
6
8
9
10
13
14
4
15
16

KA324: IC703(Quad operational amplifier)

Package Outline

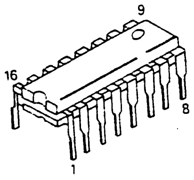


Block Diagram

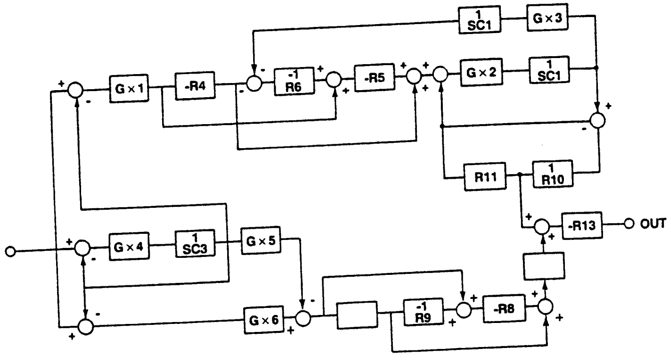

OUT1
IN1 (−)
IN1 (+)
VCC
IN2 (+)
IN2 (−)
OUT2
1
2
3
4
5
6
7
14
13
12
11
10
9
8
OUT4
IN4 (−)
IN4 (+)
GND
IN3 (+)
IN3 (−)
OUT3

CXA 1198AP : IC112 (Stereo Cassette deck recording equalizer)

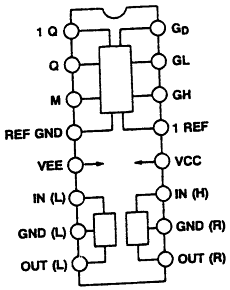
Package Outline



Block Diagram

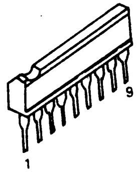

1/SC1
G×3
G×1
-R4
-1/R6
-R5
G×2
1/SC1
R11
1/R10
-R13
OUT
G×4
1/SC3
G×5
G×6
-1/R9
-R8

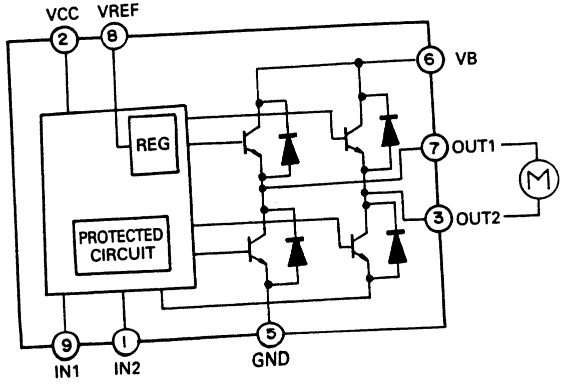
Internal Diagram


1 Q
Q
M
REF GND
VEE
IN (L)
GND (L)
OUT (L)
GD
GL
GH
1 REF
VCC
IN (H)
GND (R)
OUT (R)

TA7291S: IC603 (Driver IC)

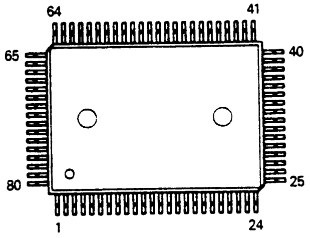
Package Outline



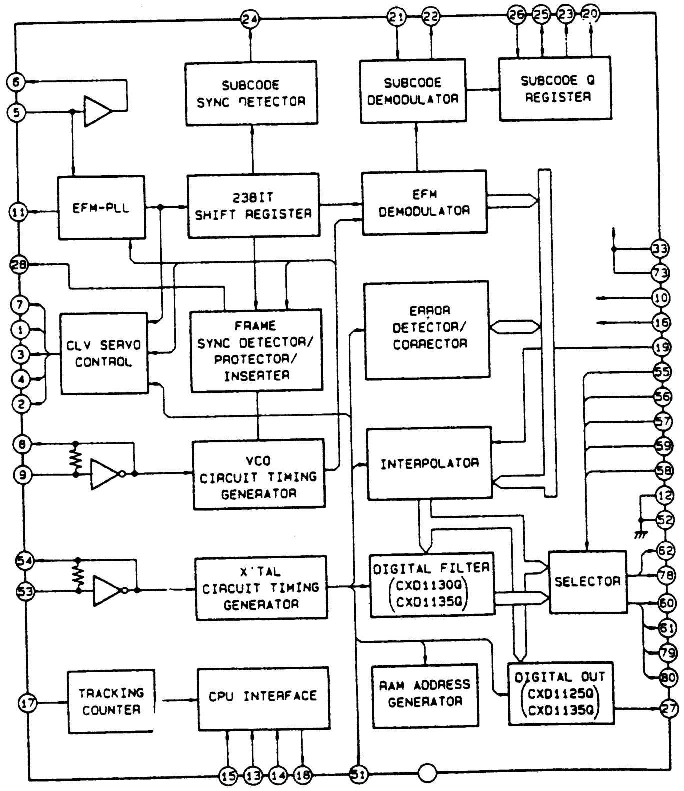

VCC
VREF
2
8
6
VB
REG
7
OUT1
M
3
OUT2
PROTECTED CIRCUIT
9
1
5
IN1
IN2
GND

CXD1167Q: IC803 (Digital Signal Processor)

Top View

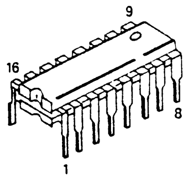

64
41
65
40
80
25
1
24

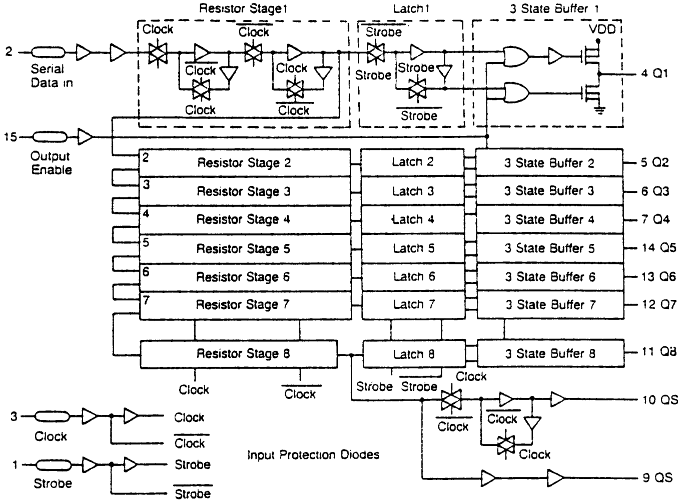
Block Diagram


SUBCODE SYNC DETECTOR
SUBCODE DEMODULATOR
SUBCODE Q REGISTER
EFM-PLL
23BIT SHIFT REGISTER
EFM DEMODULATOR
ERROR DETECTOR/ CORRECTOR
CLV SERVO CONTROL
FRAME SYNC DETECTOR/ PROTECTOR/ INSERTER
VCO CIRCUIT TIMING GENERATOR
INTERPOLATOR
X'TAL CIRCUIT TIMING GENERATOR
DIGITAL FILTER (CXD1130Q CXD1135Q)
SELECTOR
TRACKING COUNTER
CPU INTERFACE
RAM ADDRESS GENERATOR
DIGITAL OUT (CXD1125Q CXD1135Q)
24
21
22
26
25
23
20
6
5
11
28
7
1
3
4
2
8
9
54
53
17
15
13
14
18
51
33
73
10
16
19
55
56
57
59
58
12
52
62
78
60
61
79
80
27

C14094: IC108

Package Outline




Resistor Stage1
Latch1
3 State Buffer 1
Clock
Clock
Strobe
VDD
2
Serial Data in
Clock
Clock
Strobe
Strobe
4 Q1
Clock
Clock
Strobe
15
Output Enable
2 Resistor Stage 2
3 Resistor Stage 3
4 Resistor Stage 4
5 Resistor Stage 5
6 Resistor Stage 6
7 Resistor Stage 7
Resistor Stage 8
Latch 2
Latch 3
Latch 4
Latch 5
Latch 6
Latch 7
Latch 8
3 State Buffer 2
3 State Buffer 3
3 State Buffer 4
3 State Buffer 5
3 State Buffer 6
3 State Buffer 7
3 State Buffer 8
5 Q2
6 Q3
7 Q4
14 Q5
13 Q6
12 Q7
11 Q8
Clock
Clock
Strobe
Strobe
Clock
Clock
Clock
Clock
10 QS
9 QS
3
Clock
Clock
Clock
1
Strobe
Strobe
Strobe
Input Protection Diodes

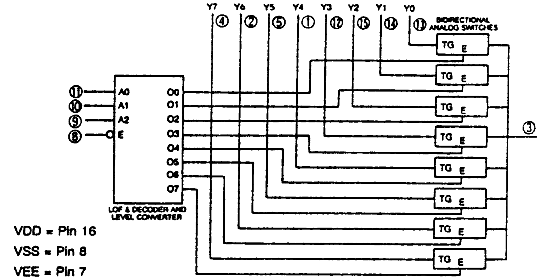
MC14051B: IC604, IC605 (8-Channel analog multiplexer)

TRUTH TABLE

INPUTS				CHANNELS							
E	A_2	A_1	A_0	Y_0-Z	Y_1-Z	Y_2-Z	Y_3-Z	Y_4-Z	Y_5-Z	Y_6-Z	Y_7-Z
L	L	L	L	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
L	L	L	H	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
L	L	H	L	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
L	L	H	H	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
L	H	L	L	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
L	H	L	H	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
L	H	H	L	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
L	H	H	H	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
H	X	X	X	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

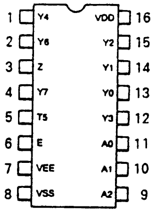
L = LOW Level
H = HIGH Level
X = Don't Care

4051B FUNCTIONAL LOGIC DIAGRAM


Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
④
⑫
⑮
①
⑫
⑮
⑭
⑬
BIDIRECTIONAL ANALOG SWITCHES
⑪
⑩
⑨
⑥
A0
A1
A2
E
O0
O1
O2
O3
O4
O5
O6
O7
LOF & DECODER AND LEVEL CONVERTER
TG E
③

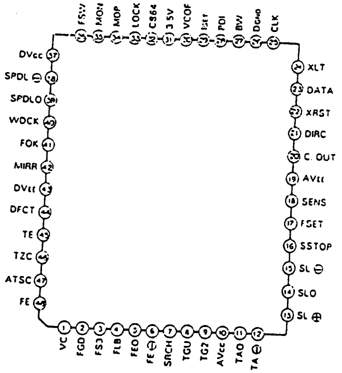
VDD = Pin 16
VSS = Pin 8
VEE = Pin 7
○ = Pin Numbers

Top View

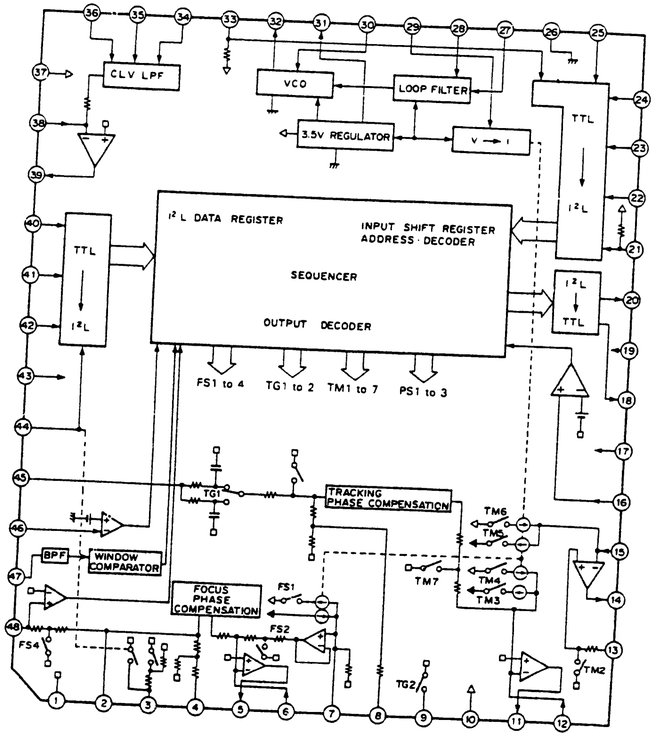

1 Y4
2 Y6
3 Z
4 Y7
5 Y5
6 E
7 VEE
8 VSS
VDD 16
Y2 15
Y1 14
Y0 13
Y3 12
A0 11
A1 10
A2 9

CXA 1082 BS : IC 802 (Servo Signal Processor for DC Player)

Package Outline

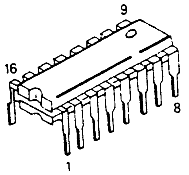

FSW
MON
MDP
LOCK
C864
3.5V
VCOF
ISET
PDI
BW
DGND
CLK
DVcc 37
SPDL ⊖ 38
SPDLO 39
WDCK 40
FOK 41
MIRR 42
DVEE 43
DFCT 44
TE 45
TZC 46
ATSC 47
FE 48
24 XLT
23 DATA
22 XRST
21 DIRC
20 C. OUT
19 AVEE
18 SENS
17 FSET
16 SSTOP
15 SL ⊖
14 SLO
13 SL ⊕
1 VC
2 FGD
3 FS3
4 FLB
5 FEO
6 FE ⊖
7 SRCH
8 TGU
9 TG2
10 AVcc
11 TAO
12 TA ⊖

Block Diagram

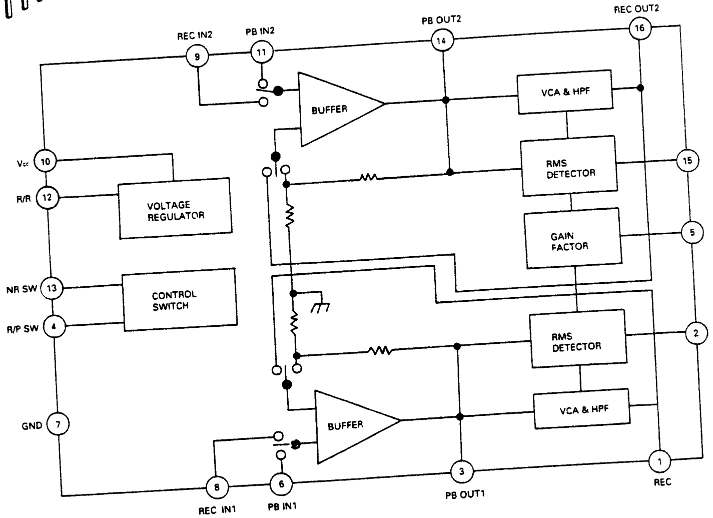

CLV LPF
VCO
LOOP FILTER
3.5V REGULATOR
V → I
TTL
I²L
I²L DATA REGISTER
INPUT SHIFT REGISTER
ADDRESS · DECODER
SEQUENCER
OUTPUT DECODER
FS1 to 4
TG1 to 2
TM1 to 7
PS1 to 3
TG1
TRACKING PHASE COMPENSATION
TM6
TM5
TM7
TM4
TM3
TM2
BPF
WINDOW COMPARATOR
FOCUS PHASE COMPENSATION
FS1
FS2
FS4
TG2

KA22712: IC106 (Dolby B-type noise reduction processor)

Package Outline

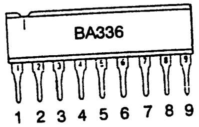


Block Diagram

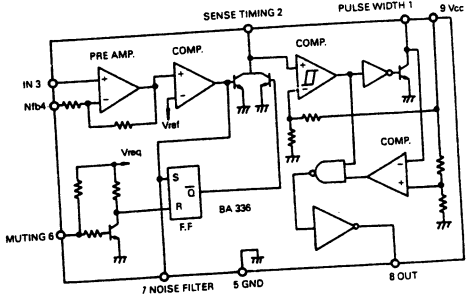

REC IN2
PB IN2
PB OUT2
REC OUT2
9
11
14
16
BUFFER
VCA & HPF
Vcc 10
R/R 12
VOLTAGE REGULATOR
RMS DETECTOR
15
GAIN FACTOR
5
NR SW 13
R/P SW 4
CONTROL SWITCH
RMS DETECTOR
2
VCA & HPF
BUFFER
GND 7
8
6
3
1
REC IN1
PB IN1
PB OUT1
REC

BA336: IC601

Front View

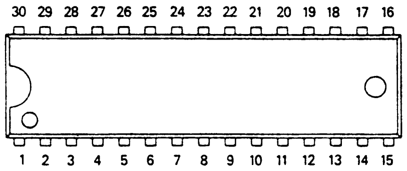

BA336
1 2 3 4 5 6 7 8 9

Block Diagram

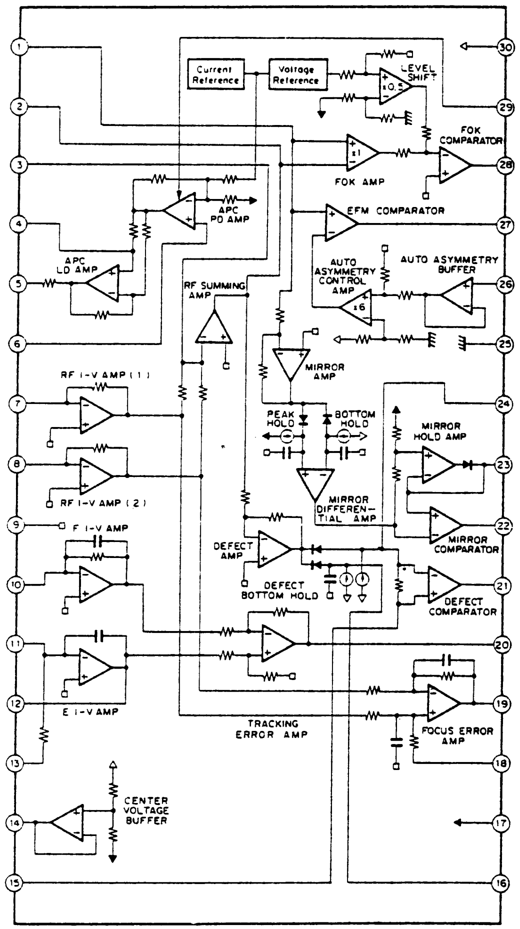

SENSE TIMING 2
PULSE WIDTH 1
9 Vcc
PRE AMP.
COMP.
COMP.
IN 3
Nfb4
Vref
COMP.
Vreq
S
Q̄
R
F.F
BA 336
MUTING 6
7 NOISE FILTER
5 GND
8 OUT

CXA1081S: IC801(RF amplifier for CD player)

Top View

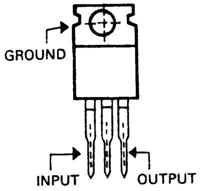

30 29 28 27 26 25 24 23 22 21 20 19 18 17 16
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Block Diagram

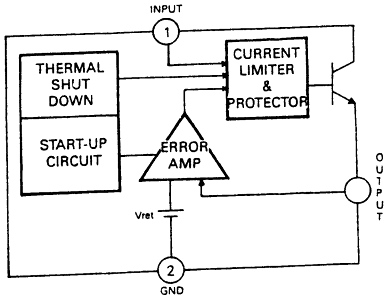

Current Reference
Voltage Reference
LEVEL SHIFT
x0.5
FOK COMPARATOR
x1
FOK AMP
APC PD AMP
EFM COMPARATOR
APC LD AMP
AUTO ASYMMETRY CONTROL AMP
AUTO ASYMMETRY BUFFER
x6
RF SUMMING AMP
MIRROR AMP
RF I-V AMP (1)
PEAK HOLD
BOTTOM HOLD
MIRROR HOLD AMP
RF I-V AMP (2)
MIRROR DIFFERENTIAL AMP
F I-V AMP
DEFECT AMP
MIRROR COMPARATOR
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
E I-V AMP
TRACKING ERROR AMP
FOCUS ERROR AMP
CENTER VOLTAGE BUFFER
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

KA78XX: IC807 (Regulator (+)IC)

Front View

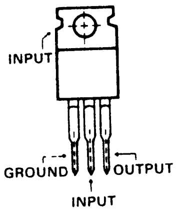

GROUND
INPUT
OUTPUT

Block Diagram

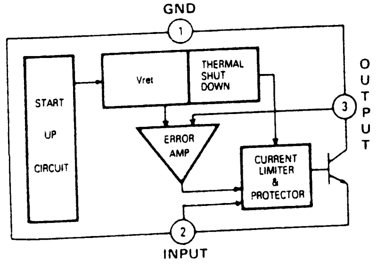

INPUT
1
THERMAL SHUT DOWN
CURRENT LIMITER & PROTECTOR
START-UP CIRCUIT
ERROR AMP
Vref
OUTPUT
2
GND

KA79XX: IC808 (Regulator (-) IC)

Front View

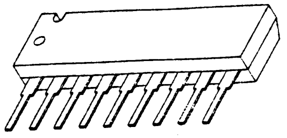

INPUT
GROUND
OUTPUT
INPUT

Block Diagram

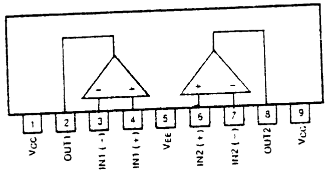

GND
1
START UP CIRCUIT
Vref
THERMAL SHUT DOWN
ERROR AMP
CURRENT LIMITER & PROTECTOR
3
OUTPUT
2
INPUT

KIA4559S/KIA7559S/KIA6259S: (Dual Operational Amplifier) IC602, IC606, IC702, IC103, IC104, IC107, IC115, IC102, IC111

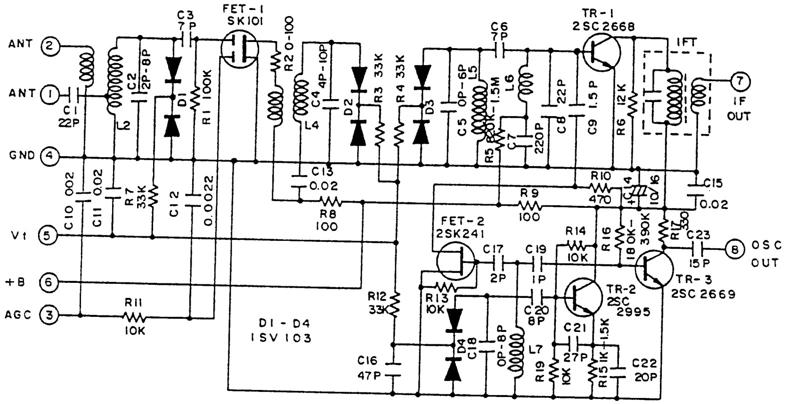
Package Outline



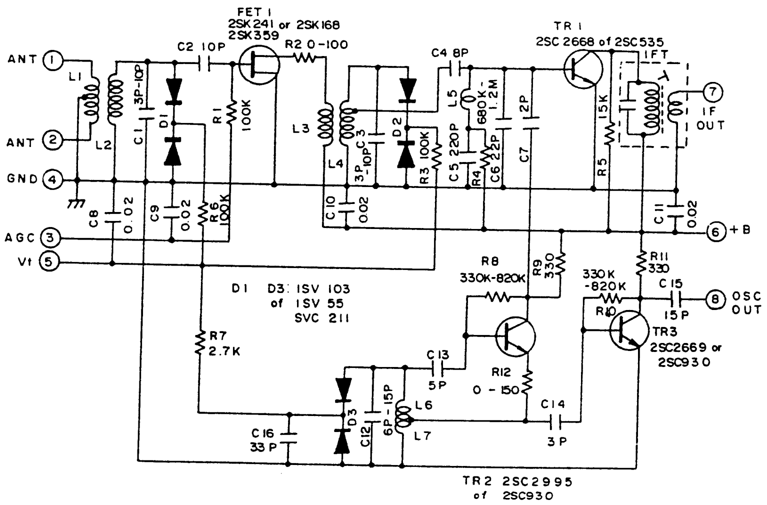
Block Diagram


1
2
3
4
5
6
7
8
9
Vcc
OUT1
IN1(-)
IN1(+)
VEE
IN2(+)
IN2(-)
OUT2
Vcc

FE101: FE407-G60 (FM FRONT-END), "D" ONLY

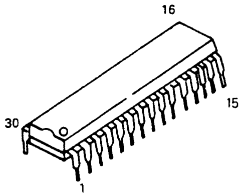

ANT ②
ANT ①
GND ④
Vt ⑤
+B ⑥
AGC ③
FET-1 SK101
TR-1 2SC2668
IFT
⑦ IF OUT
⑧ OSC OUT
FET-2 2SK241
TR-2 2SC2995
TR-3 2SC2669
D1 - D4 1SV103
R11 10K
R8 100
R9 100
R10 470
R12 33K
R13 10K
R14 10K
C16 47P
C15 0.02
C23 15P
C22 20P

FE101: FE306-A15 (FM FRONT-END)

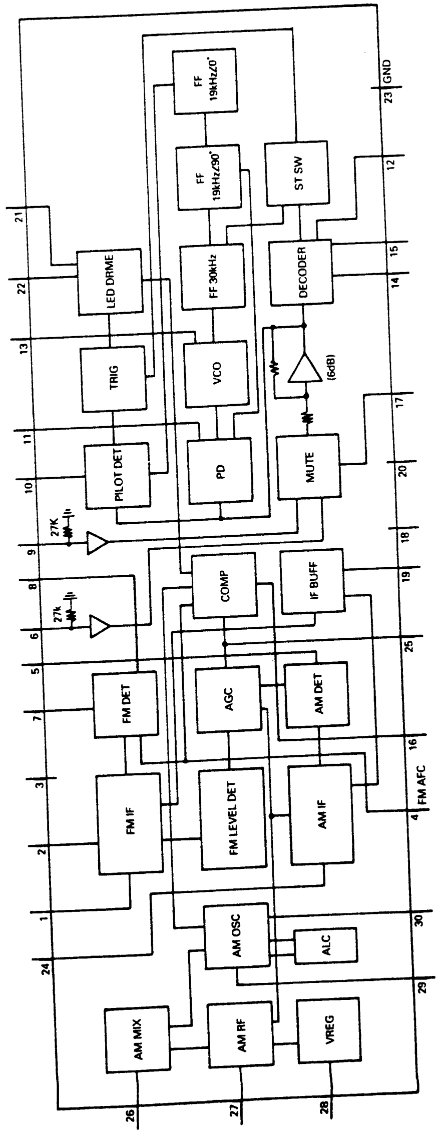

ANT ①
ANT ②
GND ④
AGC ③
Vt ⑤
FET 1 2SK241 or 2SK168 2SK359
R2 0-100
C2 10P
C4 8P
TR 1 2SC2668 of 2SC535
IFT
⑦ IF OUT
⑥ +B
⑧ OSC OUT
D1 D3: ISV 103 of ISV 55 SVC 211
R7 2.7K
R8 330K-820K
R9 330
R10 330K -820K
R11 330
R12 0 - 150
C13 5P
C14 3P
C15 15P
C16 33P
TR3 2SC2669 or 2SC930
TR2 2SC2995 of 2SC930

LA185 IN: IC114

Package Outline

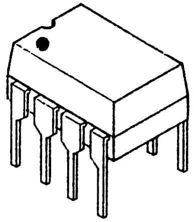


Block Diagram

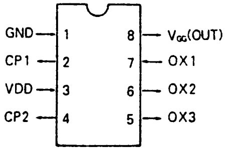

FF 19kHz∠0°
FF 19kHz∠90°
ST SW
FF 30kHz
DECODER
LED DRIVE
TRIG
VCO
(6dB)
PILOT DET
PD
MUTE
27K
COMP
IF BUFF
FM DET
AGC
AM DET
FM IF
FM LEVEL DET
AM IF
AM OSC
ALC
AM MIX
AM RF
VREG
23 GND
4 FM AFC

MN3103: IC105(CMOS clock generator/driver for BBD'S)

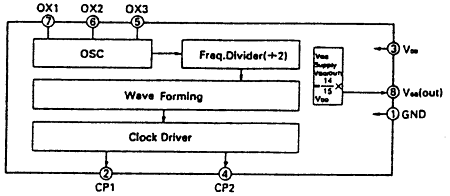
Package Outline



Pin Connection Diagram

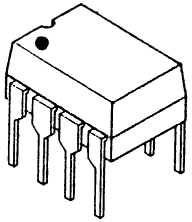

GND
1
CP1
2
VDD
3
CP2
4
8
V_{GG}(OUT)
7
OX1
6
OX2
5
OX3

Block Diagram

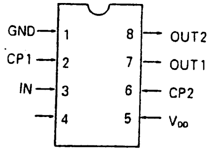

OX1
7
OX2
6
OX3
5
OSC
Freq.Divider(÷2)
Wave Forming
Clock Driver
V_{GG} Supply V_{GG}(out) = 14/15 V_{DD}
3
V_{DD}
8
V_{GG}(out)
1
GND
2
CP1
4
CP2

MN 3007 : IC 109 (1024–Stage low noise BBD for audio signals)

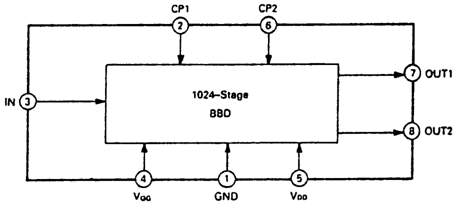
Package Outline

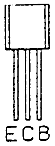
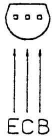
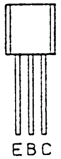
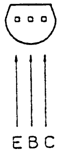
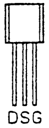
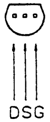
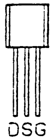
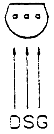
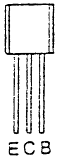
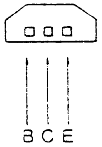


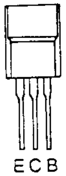
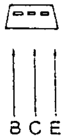
Pin Connection Diagram


GND
1
CP1
2
IN
3
4
8
OUT2
7
OUT1
6
CP2
5
V_{DD}

Block Diagram

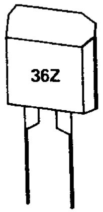

CP1
2
CP2
6
IN
3
1024–Stage BBD
7
OUT1
8
OUT2
4
V_{GG}
1
GND
5
V_{DD}

TRANSISTORS	FRONT VIEW	BOTTOM VIEW
KTC 2240B/KTC3200 KTC 1923Y KTC 1815Y/KTC 3198 KTA 1015Y/KTA1266 KTA 1302B KTC 2235Y/KTC1027 KTC 2236AY KTA965Y/KTA1023		
MPSA 06 MPSA56		
2SK 168D		
2SK 117Y		
DTA 114YS DTC 114YS DTC 114TS DTC 144E		

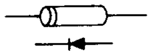
TRANSISTORS	**FRONT VIEW**	**BOTTOM VIEW**
2SB 1367Y		
TERMINAL NAME		
B→ BASE	G→ GATE	
C→ COUECTOR	S→ SOURCE	
E→ ENITTER	D→ DRAIN	

DIODES

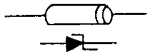
KV 1235Z



IN 4148
IN 4002

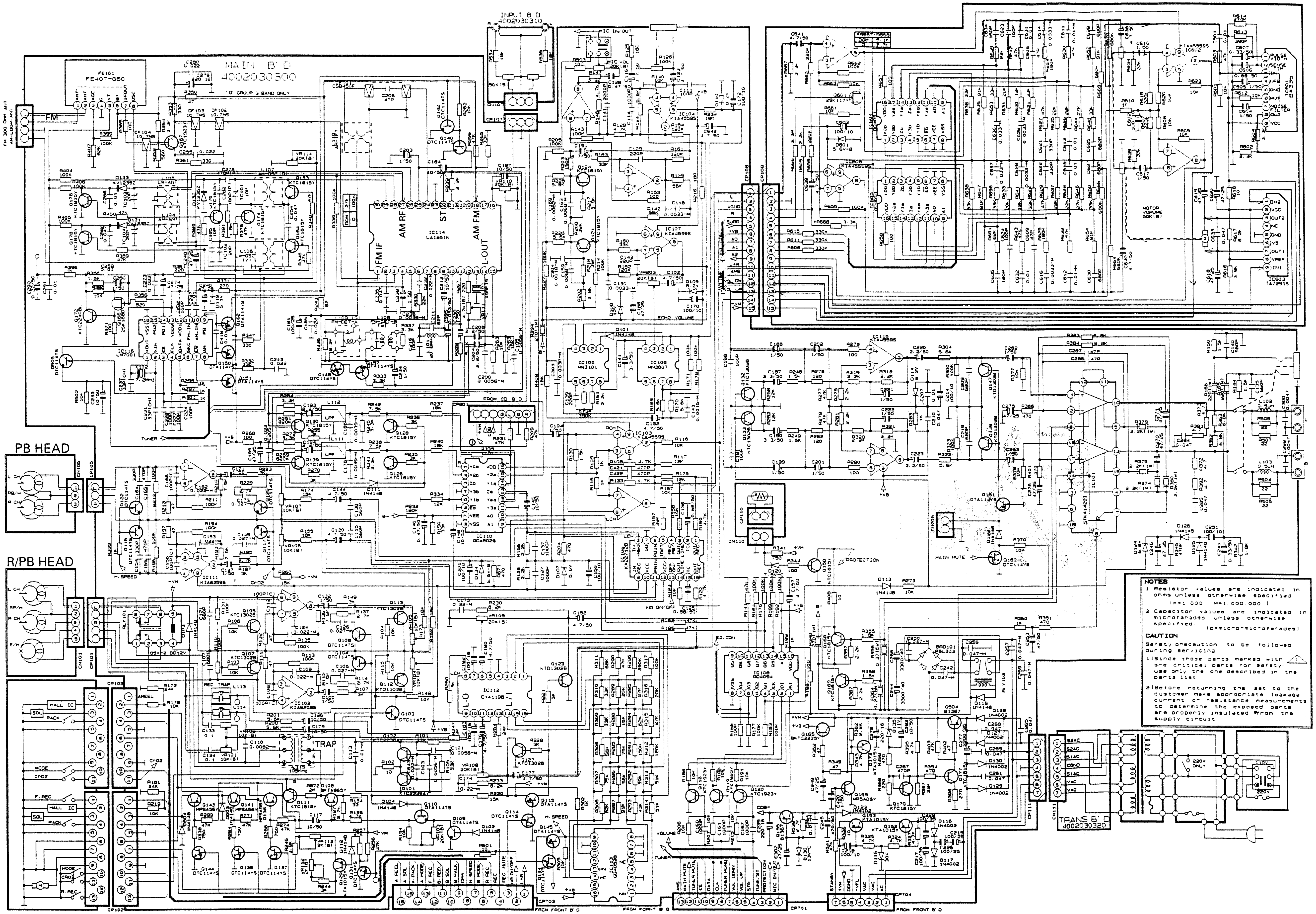


Zermer Diode



SCHEMATIC DIAGRAM I

Model No: P-333R



MAIN B'D
4002030300
INPUT B'D
4002030310
TRANS B'D
4002030320
FM
FE101
FE407-G60
PB HEAD
R/PB HEAD
IC114
LA1851N
FM IF
AM RF
AM-FM
L-OUT
ST
FROM CD B'D
TUNER
ECHO VOLUME
MOTOR VOLUME
IC603
TA7291S
IC101
STK4142II
MAIN MUTE
PROTECTION
TRAP
H. SPEED
SOL
HALL IC
PACK
MODE
CRO2
F. REC
R. REC
220V ONLY
110V
220V
FROM FRONT B'D
CP701
CP703
CP704

NOTES

1 Resistor values are indicated in ohms unless otherwise specified
(K=1.000 M=1.000.000)

2. Capacitor values are indicated in microfarades unless otherwise specified.
(p=micro-microfarades)

CAUTION

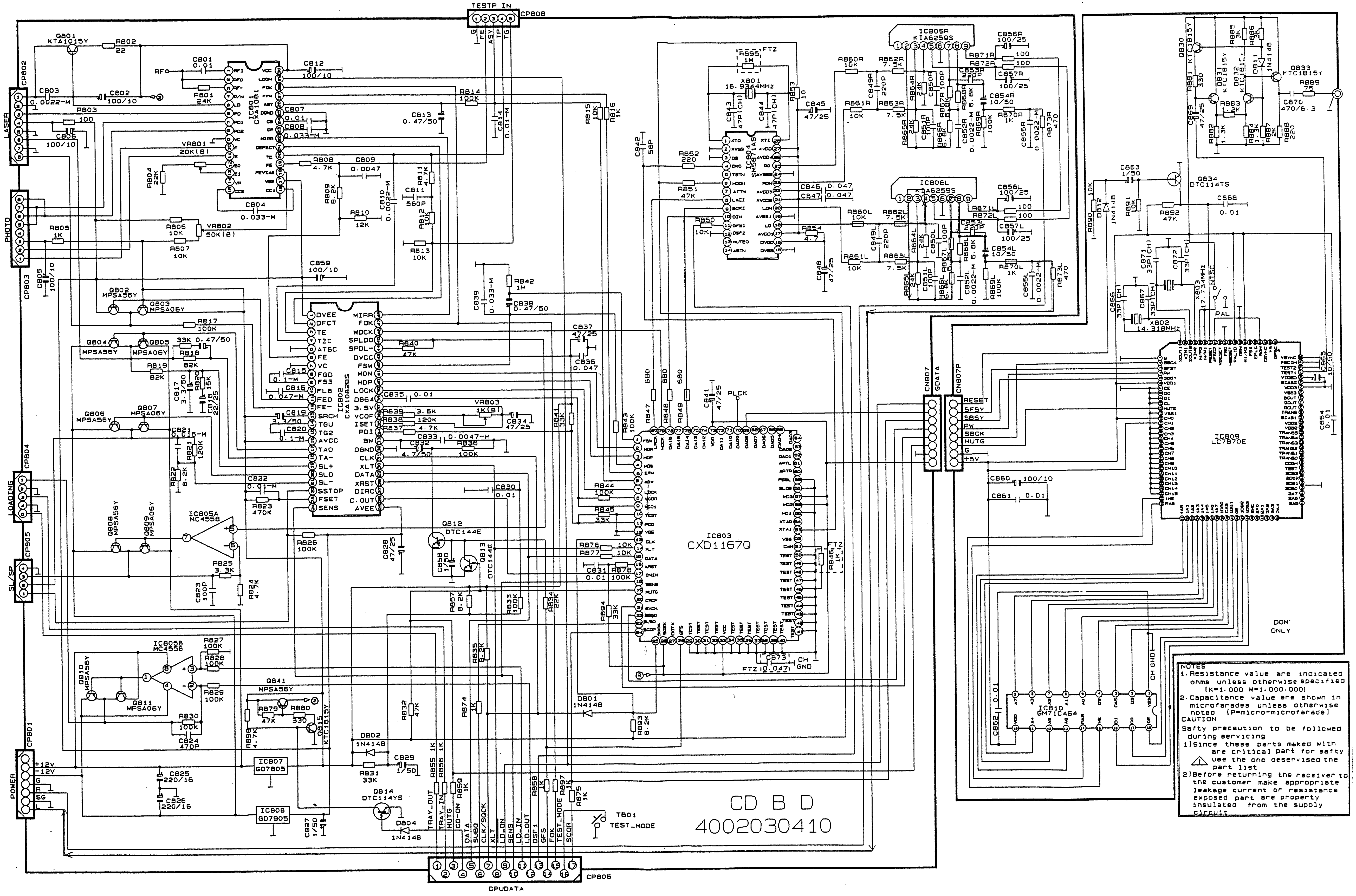
Safety precaution to be followed during servicing

1)Since those parts marked with ⚠ are critical parts for safety. use only the one described in the parts list

2)Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAM II

Model No: P-333R


TESTP IN
CP808
CP802
LASER
PHOTO
CP803
CP804
LOADING
CP805
SL/SP
CP801
POWER
+12V
-12V
G
R
SG
CP806
CPUDATA
TRAY_OUT
TRAY_IN
MUTG
CD-ON
DATA
SUBQ
CLK/SQCK
XLT
LD_ON
SENS
LD_IN
LD_OUT
DSF1
GFS
FOK
TEST_MODE
SCOR
TB01
TEST_MODE
IC801
CXA1081
IC802
CXA1082BS
IC803
CXD1167Q
IC804
SM5871AS
IC805A
MC4558
IC805B
MC4558
IC806R
KIA6259S
IC806L
KIA6259S
IC807
GD7805
IC808
GD7905
IC809
LC7870E
IC810
GM71C464
X801
16.9344MHZ
X802
14.318MHZ
X803
17.734MHZ
NTSC
PAL
CN807
GDATA
CN807P
RESET
SFSY
SBSY
PW
SBCK
MUTG
G
+5V
CH GND
DOM'
ONLY
Q801
KTA1015Y
Q802
MPSA56Y
Q803
MPSA06Y
Q804
MPSA56Y
Q805
MPSA06Y
Q806
MPSA56Y
Q807
MPSA06Y
Q808
MPSA56Y
Q809
MPSA06Y
Q810
MPSA56Y
Q811
MPSA06Y
Q812
DTC144E
Q813
DTC144E
Q814
DTC114YS
Q815
KTC1815Y
Q841
MPSA56Y
Q830
KTC1815Y
Q831
KTC1815Y
Q832
KTC1815Y
Q833
KTC1815Y
Q834
DTC114TS
D801
1N4148
D802
1N4148
D804
1N4148
D811
1N4148
D812
1N4148
VR801
20K(B)
VR802
50K(B)
VR803
1K(B)
PLCK
FTZ
CD B D
4002030410

NOTES
1. Resistance value are indicated ohms unless otherwise specified (K=1.000 M=1.000.000)
2. Capacitance value are shown in microfarades unless otherwise noted (P=micro-microfarade)

CAUTION

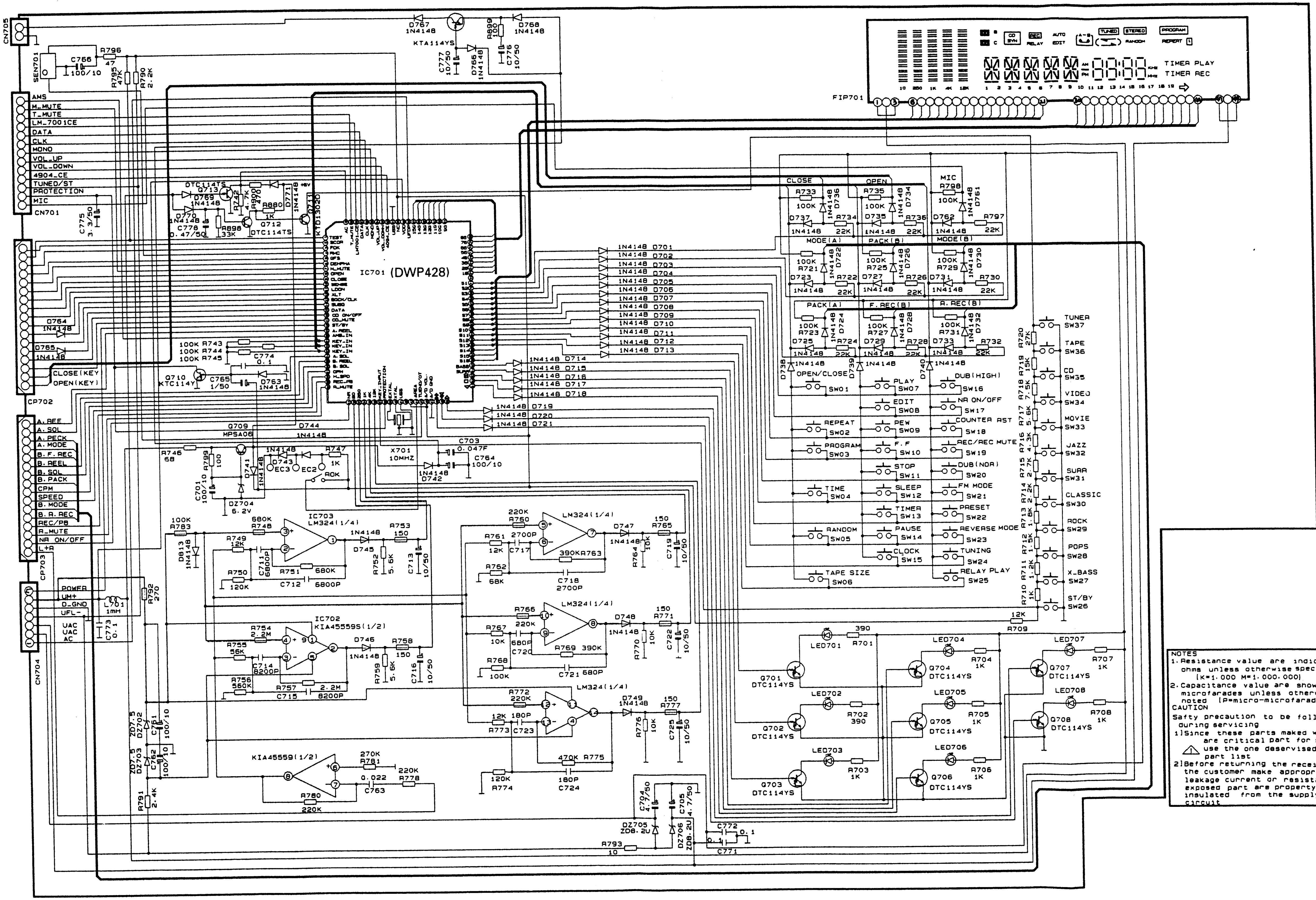
Safty precaution to be followed during servicing

1) Since these parts maked with ⚠ are critical part for safty use the one deservised the part list

2) Before returning the receiver to the customer make appropriate leakage current or resistance exposed part are property insulated from the supply circuit

SCHEMATIC DIAGRAM III

Model No: P-333R


CN705
SEN701
C766
R796
R795 47K
R790 2.2K
D767 1N4148
KTA114YS
Q711
R899 100
D768 1N4148
C777 10/50
D765 1N4148
C776 10/50
AMS
M_MUTE
T_MUTE
LM_7001CE
DATA
CLK
MONO
VOL_UP
VOL_DOWN
4904_CE
TUNED/ST
PROTECTION
MIC
CN701
C775 3.3/50
DTC114TS Q713
D769 1N4148
D770 1N4148
C778 0.47/50
R898 33K
Q712 DTC114TS
R880 1K
D771 1N4148
Q714 KTD13020
IC701 (DWP428)
D764 1N4148
D765 1N4148
CLOSE(KEY)
OPEN(KEY)
CP702
100K R743
100K R744
100K R745
C774 0.1
Q710 KTC114Y
C765 1/50
D763 1N4148
1N4148 D701
1N4148 D702
1N4148 D703
1N4148 D704
1N4148 D705
1N4148 D706
1N4148 D707
1N4148 D708
1N4148 D709
1N4148 D710
1N4148 D711
1N4148 D712
1N4148 D713
1N4148 D714
1N4148 D715
1N4148 D716
1N4148 D717
1N4148 D718
1N4148 D719
1N4148 D720
1N4148 D721
A.REF
A.SOL
A.PECK
A.MODE
B.F.REC
B.REEL
B.SOL
B.PACK
CPM
SPEED
B.MODE
B.R.REC
REC/PB
R_MUTE
NR ON/OFF
L+R
CP703
Q709 MPSA06
D744 1N4148
R746 68
R799 100
C701 100/10
DZ704 6.2V
D741 1N4148
D743
EC3
EC2
R747 1K
ROK
X701 10MHZ
D742 1N4148
C703 0.047F
C764 100/10
IC703 LM324(1/4)
100K R783
680K R748
R749 12K
D813 1N4148
C711 6800P
R751 680K
R750 120K
C712 6800P
D745 1N4148
R753 150
R752 5.6K
C713 10/50
POWER
UM+
D_GND
UFL-
UAC
UAC
AC
CN704
L701 1mH
C773 0.1
R792 270
IC702 KIA4555S(1/2)
R754 2.2M
R755 56K
C714 8200P
R756 560K
R757
C715
2.2M 8200P
D746 1N4148
R758 150
R759 5.6K
C716 10/50
ZD7.5 DZ702
C761 100/10
ZD7.5 DZ703
C762 100/10
R791 2.4K
KIA4555S(1/2)
270K R781
R780 220K
0.022 C763
220K R778
LM324(1/4)
220K R760
R761 12K
2700P C717
390K R763
D747 1N4148
150 R765
R764 10K
C719 10/50
R762 68K
C718 2700P
R766
220K
R767 10K
680P C720
R769 390K
R768 100K
C721 680P
D748 1N4148
150 R771
R770 10K
C722 10/50
R772 220K
12K R773
180P C723
D749 1N4148
150 R777
R776 10K
C725 10/50
470K R775
120K R774
180P C724
C704 4.7/50
C705 4.7/50
DZ705 ZD8.2V
DZ706 ZD8.2V
C772 0.1
C771
R793 10
FIP701
TIMER PLAY
TIMER REC
AUTO
EDIT
RELAY
TUNED
STEREO
PROGRAM
RANDOM
REPEAT
CLOSE
R733 100K
D736 1N4148
D737 1N4148
R734 22K
OPEN
R735 100K
D734 1N4148
D735 1N4148
R736 22K
MIC
R798 100K
D761 1N4148
D762 1N4148
R797 22K
MODE(A)
R721 100K
D722 1N4148
D723 1N4148
R722 22K
PACK(B)
R725 100K
D726 1N4148
D727 1N4148
R726 22K
MODE(B)
R729 100K
D730 1N4148
D731 1N4148
R730 22K
PACK(A)
R723 100K
D724 1N4148
D725 1N4148
R724 22K
F.REC(B)
R727 100K
D728 1N4148
D729 1N4148
R728 22K
R.REC(B)
R731 100K
D732 1N4148
D733 1N4148
R732 22K
D738 1N4148
D739 1N4148
D740 1N4148
OPEN/CLOSE SW01
REPEAT SW02
PROGRAM SW03
TIME SW04
RANDOM SW05
TAPE SIZE SW06
PLAY SW07
EDIT SW08
REW SW09
F.F SW10
STOP SW11
SLEEP SW12
TIMER SW13
PAUSE SW14
CLOCK SW15
DUB(HIGH) SW16
NR ON/OFF SW17
COUNTER RST SW18
REC/REC MUTE SW19
DUB(NOR) SW20
FM MODE SW21
PRESET SW22
REVERSE MODE SW23
TUNING SW24
RELAY PLAY SW25
ST/BY SW26
X_BASS SW27
POPS SW28
ROCK SW29
CLASSIC SW30
SURR SW31
JAZZ SW32
MOVIE SW33
VIDEO SW34
CD SW35
TAPE SW36
TUNER SW37
R720 27K
R719 15K
R718 7.5K
R717 5.6K
R716 4.3K
R715 2.7K
R714 2.2K
R713 1.8K
R712 1.5K
R711 1.2K
R710 1K
12K R709
LED701
390 R701
Q701 DTC114YS
LED702
R702 390
Q702 DTC114YS
LED703
R703 1K
Q703 DTC114YS
LED704
R704 1K
Q704 DTC114YS
LED705
R705 1K
Q705 DTC114YS
LED706
R706 1K
Q706 DTC114YS
LED707
R707 1K
Q707 DTC114YS
LED708
R708 1K
Q708 DTC114YS

NOTES
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(K=1.000 M=1.000.000)
2. Capacitance value are shown in microfarades unless otherwise noted (P=micro-microfarade)

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